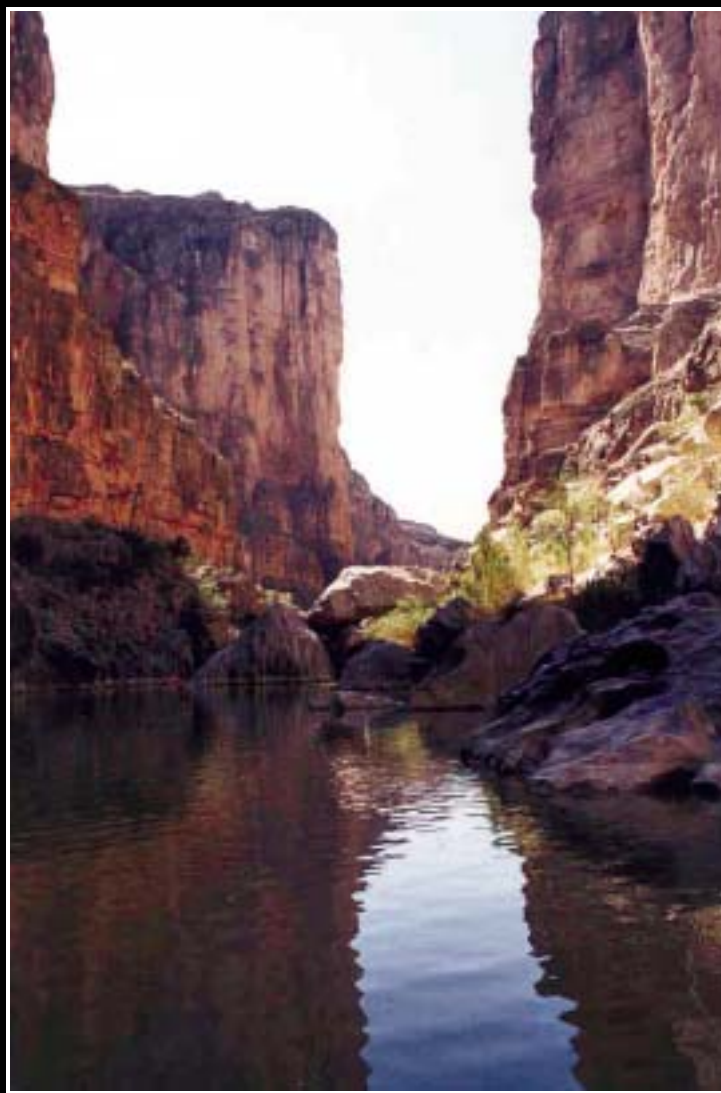




Rio Grande Wild and Scenic River

Draft General Management Plan / Environmental Impact Statement



Draft
General Management Plan / Environmental Impact Statement
RIO GRANDE WILD AND SCENIC RIVER

Brewster and Terrell Counties, Texas
October 2003

Congress designated a segment of the Rio Grande in Texas as the Rio Grande Wild and Scenic River in 1978 because of its “outstandingly remarkable” scenic, geologic, fish and wildlife, and recreational values. A 196-mile strip of land on the American shore of the Rio Grande in the Chihuahuan Desert protects the river. The National Park Service (NPS) at Big Bend National Park is responsible for managing the wild and scenic river. This *General Management Plan / Environmental Impact Statement* will define a direction for the management of the Rio Grande Wild and Scenic River for the next 15 to 20 years, specifying the resource conditions and visitor experiences that the National Park Service would like to achieve.

To establish the desired experiences and resource conditions for the wild and scenic river, a partnership team was established with representatives from Texas Parks and Wildlife, local counties, an international environmental organization, river user groups, and private landowners. On the basis of public comments and within the framework established by legislation and mandates, the planning team and partners developed a no-action alternative (continuation of current management) and an “action” alternative for managing the wild and scenic river.

Alternative A, the no-action alternative, would continue current management practices into the future. Its goal would be to retain the existing visitor experiences. No new management plan would be implemented. The National Park Service would respond to future needs and conditions associated with the existing wild and scenic river designation without major actions or changes in course, continuing to comply with the Wild and Scenic Rivers Act and associated guidelines, NPS management policies, and current park plans. No agreements with landowners would be initiated; and there would be no changes in river access from federal land. Private and state landowners could open or close public access as they wished. The river boundary would remain at the default 0.25 mile from the ordinary high water mark on the United States side of the river.

The intent of **Alternative B, the preferred alternative**, would be to enhance resource protection and offer high-quality visitor experiences. The protection of natural and cultural resources would be emphasized, as would the visitor experience. A permanent boundary for the wild and scenic river would be established to reflect the river’s outstandingly remarkable values. The National Park Service would negotiate individual agreements with each nonfederal landowner to specify the rights and responsibilities of the National Park Service and each landowner. The National Park Service would recommend to Congress that the upper segment of the Rio Grande in Big Bend National Park be designated a wild and scenic river, bringing the total federal and state ownership along the river to more than 50%.

Alternative A (which would continue the management pattern of the past 25 years) would not ensure the protection of outstandingly remarkable values on private lands. It would mean that no partnership for resource protection would be established between the National Park Service and private landowners. Resources could be damaged, and private lands now available to the public for recreational use at the sufferance of landowners could be closed off. The National Park Service would not assist private landowners in resource protection or law enforcement, and there could be continued mistrust of NPS intentions with respect to regulations and land acquisition.

Landowner agreements in **alternative B** would foster a cooperative relationship, allowing the National Park Service to play a role in protecting resources and values on nonfederal lands. NPS assistance would be available to landowners to protect outstandingly remarkable values on their land. An increase in Big Bend National Park staff would be included in this alternative. Beneficial effects on landowner relations, natural resources, cultural resources, scenic values, and recreational use would result from alternative B.

ERRATA
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The following corrections should be noted while reviewing the document:

Page 17 – Legal Issues. The question mark after Illegal Entry should not be there.

Page 44 – Segments Adjacent To Nonfederal Land, first paragraph. Use level limits for the Lower Canyons should be 1,000 persons and 7,000 user days per year, the same as that shown in Table 6, page 43.

Page 44 - Segments Adjacent To Nonfederal Land, third paragraph. Rivers users would be allowed to pull out and camp on the United States shore up to 150 feet from the water's edge, not 75. Disregard the 25-foot vertical limit.

Page 111 – Landowner Agreement. Please disregard the highlighted "Note" about liability insurance. The remaining language will stay in the agreements.

SUMMARY

Congress designated a segment of the Rio Grande in Texas as the Rio Grande Wild and Scenic River in 1978 because of its “outstandingly remarkable” scenic, geologic, fish and wildlife, and recreational values. A 196-mile strip of land on the American shore of the Rio Grande in the Chihuahuan Desert protects the river. The responsibility for managing the wild and scenic river was given to the National Park Service at Big Bend National Park, but no management plan has been approved that would guide the long-term management of the wild and scenic river.

The purposes of this *Management Plan* / *Environment Impact Statement* are to define a direction for the management of the Rio Grande Wild and Scenic River and to specify the resource conditions and visitor experiences to be achieved on the wild and scenic river. The plan is intended to provide a framework to help guide management programs and set priorities for the next 15 to 20 years. The approved plan will provide a framework for making decisions about the future direction for the management and use of the wild and scenic river.

In this plan, the official boundary of the Rio Grande Wild and Scenic River is described. Within that boundary, the outstandingly remarkable scenic, geological, fish and wildlife, recreational, scientific, and cultural values would be protected and the rights and needs of private property owners respected.

The National Park Service (NPS) regards the public as an integral team member in establishing the desired experiences and conditions of resources that will guide the management of the Rio Grande Wild and Scenic River. A vital partnership team was established with representatives from Texas Parks and Wildlife, local counties, an international environmental organization, river user groups, and private landowners.

ALTERNATIVES

On the basis of public comments and within the framework established by legislation and mandates, the planning team and partners developed a no-action alternative (continuation of current management) and an “action” alternative for the management of the wild and scenic river.

Alternative A: Existing Management Direction (No Action)

The no-action alternative represents the existing conditions at the Rio Grande Wild and Scenic River and what would happen if the current management practices continued into the future. The goal in this alternative would be to maintain the existing visitor experiences and the river’s outstandingly remarkable values of scenery, recreation, geology, fish and wildlife, cultural resources, and scientific resources. No management plan would be implemented, and the Rio Grande Wild and Scenic River would be managed as at present.

“No action” does not imply or direct discontinuing the present uses or management actions or removing the existing designation. The National Park Service would respond to future needs and conditions associated with the existing wild and scenic river designation without major actions or changes in course. The river would continue to be managed in compliance with the Wild and Scenic Rivers Act and associated guidelines, NPS management policies, and current park management and implementation plans. No agreements with landowners would be implemented; the National Park Service would not make any changes in river access; and private and state landowners could open or close public access as they wished. The river boundary would remain at the default 0.25 mile from the ordinary high water mark on the United States side of the river.

Alternative B: Enhance Resource Protection While Continuing High-Quality Visitor Experiences (Preferred Alternative)

The concept of alternative B, the alternative preferred by the National Park Service, would be to emphasize the protection of natural and cultural resources and of the visitor experience in the Lower Canyons (outside of Big Bend National Park boundaries). This would be done by enlisting landowners as full partners in protecting resources and establishing a permanent boundary reflective of outstandingly remarkable values.

A cornerstone of the preferred alternative is the implementation of individual agreements that the National Park Service would negotiate with each nonfederal landowner. These binding landowner agreements would specify what rights and responsibilities the National Park Service and each landowner would have in regard to the property within the established boundary. The National Park Service would consult with landowners about outstandingly remarkable values on the property and boundary appropriate to protect those values. The agreements also would foster a spirit of cooperation instead of confrontation.

As another component of this alternative, the upper segment of the Rio Grande in Big Bend National Park would be recommended for wild and scenic river designation by Congress. This additional designation would bring the total federal and state ownership along the river to more than 50%, thus prohibiting the acquisition of fee title through condemnation of nonfederal lands. This point is extremely important among private landowners in the area.

ENVIRONMENTAL CONSEQUENCES

The consequences to the environment, the visitor experience, and nonfederal landowners that

could result from each alternative were evaluated.

Effects of Alternative A

With the existing default 0.25-mile boundary remaining in effect and no agreements being made between the National Park Service and private landowners under alternative A, the protection of outstandingly remarkable values on private lands would not be ensured. Partnerships would not be established between the National Park Service and landowners to protect resources. Resources could be damaged, and private lands now available for public recreational use could be closed off. Without landowner agreements, the National Park Service would not be able to help landowners in resource protection or law enforcement, and there could be continued mistrust of NPS intentions with respect to regulations and land acquisition.

Effects of Alternative B

Implementing agreements with landowners would foster a cooperative relationship, allowing the National Park Service to play a role in the protection of resources and values on nonfederal lands along the wild and scenic river. Clauses in the agreements would allow the National Park Service to consult with and assist landowners in preserving outstandingly remarkable values and managing the use of their property by visitors. A recommendation to increase the staff of Big Bend National Park would be included in this alternative. Beneficial effects on landowner relations, natural resources, cultural resources, scenic values, and recreational use would be realized from alternative B.

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Purpose and Need



PURPOSE OF AND NEED FOR THE PLAN

INTRODUCTION

This *General Management Plan / Environmental Impact Statement* for Rio Grande Wild and Scenic River contains several chapters. This chapter contains an explanation as to why the plan is necessary and what it will accomplish, along with background information about the wild and scenic river. The river's purpose and significance are explained, and the management goals for this area are described. The legislative commitments, mandates, and policies that have guided and continue to guide the management of the river are discussed, as are the major issues and concerns that are addressed in the plan. Special terms used in this document are defined on page 5.

The "Alternatives" chapter presents two alternatives for the management of the wild and scenic river. Alternative A, the no-action alternative, would continue the current approach to managing the wild and scenic river. This is required as a baseline of comparison for other "action" alternatives. Alternative B would follow the management approach preferred by the National Park Service (NPS) and its key partners.

The "Affected Environment" chapter contains a description of selected natural and cultural resources, the available visitor experience, and the socioeconomic conditions in the Rio Grande region that might be affected by implementing this plan.

The "Environmental Consequences" chapter contains descriptions of the potential effects on the environment that could result from each alternative.

In the "Consultation and Coordination" chapter are descriptions of the processes used by the planning team to solicit public comments and to consult with other agencies.

Further information about legislation and a sample landowner agreement are included in the appendixes.

PURPOSE

The primary purpose of this plan is to protect the free-flowing river and provide a foundation from which to protect natural and cultural resources while providing for meaningful visitor experiences. A secondary purpose is to encourage compatible activities on adjacent lands so as to minimize adverse effects on river values. Although this plan will provide overall direction for river management, subsequent action plans, such as a river use management plan, may be necessary to guide specific actions for implementing the plan. This plan fulfills the obligation for a comprehensive river management plan required by the Wild and Scenic Rivers Act.

This plan will specify the desired future resource conditions and visitor experiences in the Rio Grande Wild and Scenic River and prescribe management strategies for achieving those conditions. This conceptual plan will provide the basic framework for decision-making for the next 15 to 20 years. It contains a map and a description of the proposed boundary of the wild and scenic river, within which the outstandingly remarkable scenic, recreational, geologic, fish and wildlife and cultural values would be protected and the needs of private property owners respected. (Also see appendix A, "Legislation.")

Part 1 (b) of the Wild and Scenic Rivers Act (16 USC 1271-1287; Public Law 90-542 of October 2, 1968) designates that outstandingly remarkable values are to be protected, as follows:

It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.

The National Park Service has developed a series of management objectives to guide future

decision-making (see “Goals” beginning on p. 5).

Actions directed by general management plans or in subsequent implementation plans are accomplished over time. Budget restrictions, requirements for additional data or regulatory compliance, and competing national park system priorities might prevent the immediate implementation of some actions. Major or especially costly actions could be implemented ten or more years into the future.

NEED

According to the Wild and Scenic Rivers Act, the boundaries and classification are to be completed within one year after designation. A comprehensive river management plan is to be completed within three years after the designation, of a river to prepare a river management plan with official boundaries. The Rio Grande Wild and Scenic River was designated in 1978, and the National Park Service developed a general management plan / development concept plan for the river in 1981. According to that plan, the boundary of the wild and scenic river was to include only the area from the center of the river to the gradient boundary on the United States side. The

National Park Service, in consultation with the Department of the Interior Solicitor’s Office, later determined that boundary to be inadequate to protect the outstandingly remarkable values, and hence legally deficient. The plan never was implemented. Later, congressional action specified that the boundaries on all wild and scenic rivers without approved management plans were, by default, 0.25 mile from the ordinary high-water mark.

Therefore, there never has been a plan to guide the long-term management of the Rio Grande Wild and Scenic River. A plan is needed to identify and protect specific outstandingly remarkable values and to comply with the law, NPS *Management Policies 2001* and Director’s Order (DO) 2, *Planning Process Guidelines*.

In addition, preparing this plan presents an outstanding opportunity to foster cooperative working relationships between the U.S. government, represented by the National Park Service, and state and local governments, river users, owners of adjacent property, and the government of Mexico.

BACKGROUND

DESCRIPTION AND LOCATION

In 1978 Congress designated a segment of the Rio Grande a national wild and scenic river under the Wild and Scenic Rivers Act (16 USC 28 §1274):

The segment on the United States side of the river from river mile 842.3 above Mariscal Canyon downstream to river mile 641.1 at the Terrell–Val Verde County line, to be administered by the Secretary of the Interior. . . .

The International Boundary and Water Commission later revised the river miles on the Rio Grande, which changed the beginning and ending points to 853.2 and 657.5, respectively. This component of the national wild and scenic river system is unique in that only half of the river is designated. The southern half of the river could not be included in the designation because it is owned by Mexico.

Location

The designated stretch of the Rio Grande begins in Big Bend National Park, opposite the boundary between the Mexican states of Chihuahua and Coahuila. It then flows through Mariscal and Boquillas canyons in the national park. Downstream from the park, it extends along the state-managed Black Gap Wildlife Management Area and several parcels of private land in the Lower Canyons. The wild and scenic river segment ends at the county line between Terrell and Val Verde Counties, Texas (see the Location / Current Management map).

Congress passed legislation in 1986 that set boundaries of 0.25 mile from the ordinary high water mark for any wild and scenic rivers for which no permanent boundaries had been established by a management plan.

Outstandingly Remarkable Values

Congress designated the Rio Grande Wild and Scenic River because of its outstandingly remarkable scenic, geologic, fish and wildlife, recreational, and other similar values.

Scenic Values. Rugged canyons, verdant riparian areas, scenic rapids, and unspoiled views contribute to the scenic allure and outstanding visual quality of this area.

Geologic Features. Rock layers exposed by the Rio Grande were deposited about 100 million years ago. Subsequent uplifting, folding, faulting, and cutting of the river have produced the present topography. Near its upstream end, the Rio Grande has sliced through the surrounding rocks to form steep-walled, sometimes narrow canyons. Downstream from Boquillas Canyon, the river flows across a relatively broad and open floodplain, or *vega*. Near Reagan Canyon, the floodplain narrows abruptly, and the river flows in a continuous deeply cut canyon for almost 40 miles. In the Lower Canyons portion of this segment, the river and its tributaries lie 500 to 1,500 feet below the surrounding plateaus.

Fish and Wildlife. The Rio Grande Wild and Scenic River corridor represents an outstanding example of Chihuahuan Desert fauna in association with species that depend on the rare aquatic and riparian habitats of the river. It is an isolated outpost of rapidly dwindling and irreplaceable natural resources, including several fauna in association with species, including threatened and endangered species, that depend on the rare aquatic and riparian habitats of the river. A number of wildlife species (especially birds) use the Rio Grande as a travel corridor. Many species of animals depend on the riverine habitat for survival.

Recreational Opportunities. Spectacular river canyons, occasional rapids, the primitive character of the river, and its international flavor create a stimulating environment for a high-quality rec-

reational experience. The river can be enjoyed from canyon rims, along the shore, or in a boat. The designated segment is long enough to offer several varied and meaningful recreation experiences lasting from a few hours to several days.

LEGISLATION AND MANDATES

The development of this plan has proceeded within a complex legal framework. It was developed pursuant to the National Environmental Policy Act of 1969 (NEPA), Public Law 91-190 and the regulations of the Council on Environmental Quality (CEQ) (40 CFR 1508.22). The plan must comply with the requirements of the Wild and Scenic Rivers Act, NPS policies, and other legal mandates, as summarized below. The policies and practices listed below would continue to guide the management of the Rio Grande Wild and Scenic River under either alternative. The intent of the laws and policies is to establish sustainable conservation and to avoid the impairment of designated rivers or NPS lands and resources.

Wild and Scenic Rivers Act — Congress created the national wild and scenic rivers system in 1968 (through Public Law (PL) 90-542; 16 USC 1271 et seq.) to protect water quality and to preserve in a free-flowing condition certain rivers with outstandingly remarkable natural, cultural, or recreational values for the enjoyment of present and future generations. An underlying principle of the act is to promote partnerships among landowners, river users, tribal nations and all levels of government. As of December 2000, the national system had grown from its initial eight components to a 160-river system.

Rivers may be designated by Congress (usually following a study by a federal agency) or, under certain conditions, by the secretary of the interior. Each river is administered by a federal or state agency. The designation may not include the entire river, but it usually includes a segment within a corridor of about 0.25 mile (not to exceed 320 acres per river mile) on each side of the river so that related natural, cultural, and recreational values will be protected. In the case of the Rio Grande Wild and Scenic River, the cor-

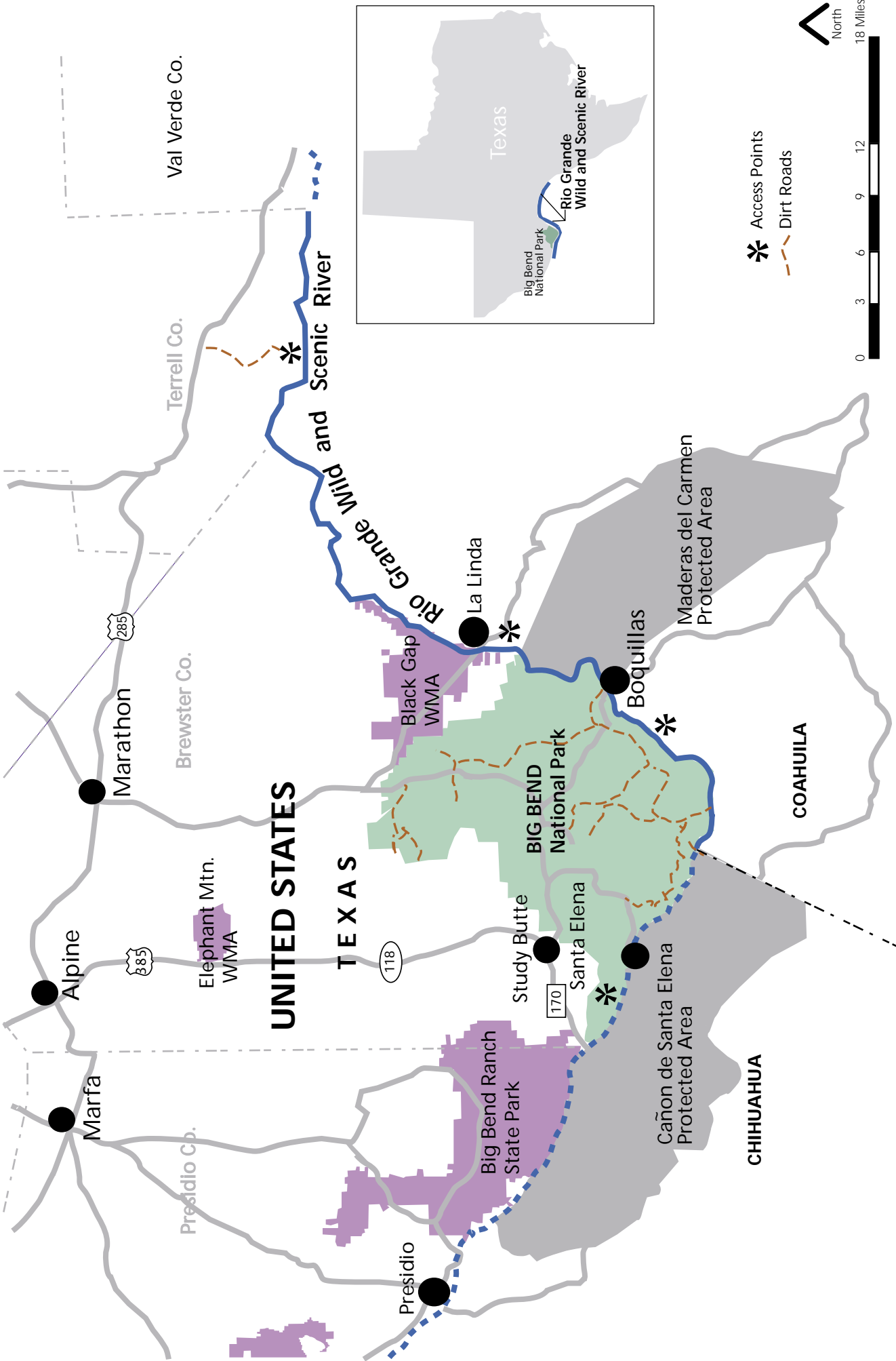
ridor extends only on the United States side of the river and may not exceed 160 acres per river mile (a total of 31,312 acres).

Each designated river is managed with the goal of nondegradation and the enhancement of the values for which it was designated. Other uses, including recreation, a variety of agricultural practices, and residential development may continue if not otherwise precluded. In most cases, not all land within the boundaries is publicly owned. In fact, there are limitations on how much land a federal agency is allowed to acquire. Designation does not affect existing water rights or existing jurisdiction of states and the United States over waters as determined by established principles of law.

Although the act provides numerous measures to protect and enhance a river's values, the most significant restrictions are provided in section 7, in which the act specifically prohibits federally assisted or sponsored water resource projects that would impede a wild and scenic river's free flow or cause direct and adverse effects on its outstandingly remarkable values.

The Wild and Scenic Rivers Act in section 6 authorizes the U.S. government to acquire land within a designated river's corridor for river management purposes. Acquisition in fee title is limited to not more than 100 acres per river mile. Lands owned by a state may be acquired by donation only. If 50% or more of the entire acreage outside the ordinary high water mark is in federal, state, or local government ownership, the U.S. government cannot acquire fee title through condemnation. This section also grants the authority to acquire easements that are necessary to provide public access to and on the river.

Section 10(a) of the act says, "Each component of the national wild and scenic rivers system shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system." It also says, "Primary emphasis shall be given to protecting its esthetic, scenic, historic, archeological and scientific features." The National Park Service



MEXICO

COAHUILA

CHIHUAHUA

Location / Current Management

Rio Grande Wild and Scenic River
National Park Service
U.S. Department of Interior
DSC / Sept 03 / 192 / 20003



interprets this section as declaring a nondegradation and enhancement policy for all designated rivers, regardless of classification.

Section 10(b) stipulates that when a wild and scenic river flows through designated wilderness, the river will be managed by the most restrictive provisions under either designation. This will apply if Congress designates the proposed wilderness in Big Bend National Park.

Section 10(e) of the act encourages cooperative agreements with state agencies in the planning and administration of wild and scenic rivers that include state lands, as in the case of the Rio Grande.

Section 13 says that the state retains the jurisdiction in regard to fish and wildlife management and navigable streams. That section also says that state jurisdiction over the waters of a wild and scenic river is unaffected by designation to the extent that such jurisdiction can be exercised without impairing the purposes of the act.

National Park System Mandates — The National Park Service is guided by a number of laws specific to the national park system, in particular the NPS Organic Act of August 25, 1916 (16 USC 1, 2-4) and the General Authorities Act (16 USC 1a-8). These acts direct the agency to conserve the scenery, the natural and historic objects, and the wildlife, and to provide for the enjoyment of those resources in such a manner as to leave them unimpaired for future generations. On March 27, 1978, Congress passed the Redwood Act (16 USC 1a-1), which reaffirmed the mandates of the Organic Act and provided additional guidance for managing the national park system, as follows:

The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established.

The Organic Act and numerous other acts and legislation have been incorporated into the NPS *Management Policies 2001*, which sets the framework and provides direction for all management decisions in the National Park Service. Section 4.3.4 of the *Policies* says “No management actions may be taken that could adversely affect the values that qualify a river for inclusion in the Wild and Scenic Rivers System.”

Federal Statutes and NPS Policies Related to Biological Resources — Guidance for protecting biological resources is found in the Endangered Species Act of 1973, NPS *Management Policies 2001*, and NPS-77, *Natural Resource Management Guidelines*. These mandates also require the examination of impacts during planning, as does the National Environmental Policy Act of 1969. In addition, a primary goal in the overall mission statement of the Department of the Interior is to protect plant and animal diversity (biodiversity) on public lands.

Under the Endangered Species Act, federal agencies, in consultation with the secretary of the interior, are required to use their authority to further the purposes of the act and to carry out programs for the conservation of listed endangered and threatened species (16 USC 1535 § 7(a)(1)). The National Park Service interprets that section as an affirmative restoration mandate and will comply through positive habitat protection and restoration programs that are integral to the proposed action.

The act also directs federal agencies, in consultation with the secretary of the interior, to ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat (16 USC 1535 § 7(a)(2)). Consultation with the U.S. Fish and Wildlife Service is required if the action might affect such a species to ensure that it would not jeopardize the species’ continued existence.

The primary objective in managing wild and scenic rivers is to protect free-flowing condi-

tions, water quality, and outstandingly remarkable values. In the case of the Rio Grande, this includes scenery, geology, fish and wildlife, and recreation.

The National Park Service has a responsibility to protect air quality under the Clean Air Act of 1963, as amended. Accordingly, the agency will seek to perpetuate the best possible air quality in parks to preserve natural and cultural resources and sustain visitor enjoyment, human health, and scenic vistas.

The Clean Water Act of 1977 sets standards and protective guidelines for maintaining surface water quality. Wherever possible, the National Park Service will avoid the pollution of park waters by human activities occurring in and outside of parks.

Federal Statutes and NPS Policies Related to Cultural Resources — The National Park Service is mandated to preserve and protect its cultural resources through the Organic Act and through specific legislation such as the National Environmental Policy Act, the Archeological Resources Protection Act, the National Historic Preservation Act, and the implementing regulations of the Advisory Council on Historic Preservation regarding “Protection of Historic Properties” (36 CFR 800). The following laws, associated regulations, and NPS policies provide direction for developing alternatives, analyzing impacts, and formulating mitigation or avoidance measures:

- National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.). The act establishes as federal policy that the historical and cultural foundations of the nation’s heritage be preserved. Section 106 requires that federal agencies that fund or have direct or indirect jurisdiction over undertakings take into account the effect of those undertakings on historic properties eligible for or included in the National Register of Historic Places.
- The Native American Graves Protection and Repatriation Act (NAGPRA, 25 USC § 3000-13) of 1994 provides for the repatriation, disposition, and protection of Native

American human remains and other defined cultural items. It also prohibits the intentional excavation and removal of Native American human remains and defined cultural property from federal or tribal lands without a permit issued under the Archeological Resources Protection Act of 1979 (16 USC 5937) and without consultation with Indian tribes. In cases involving the inadvertent discovery of Native American human remains or defined cultural items, this act requires that the activity be halted temporarily, that the items be protected, and that the appropriate federal agency or tribal authority be notified of the discovery.

- NPS policies concerning cultural resource management are from NPS *Management Policies 2001* and DO 28, *Cultural Resource Management Guidelines*. Other relevant policy directives and legislation are detailed in DO 28.

Big Bend National Park has management responsibility for the Rio Grande Wild and Scenic River. The park has consulted and will continue to consult with affiliated American Indian tribes to develop and accomplish its programs in a way that respects the beliefs, traditions, and other cultural values of the American Indian tribes that have ancestral ties to the lands encompassed by the park.

Special Mandates — The 1978 designation of the Rio Grande Wild and Scenic River also stipulated that the Wild And Scenic Rivers Act would not conflict with the 1944 Water Treaty or the 1970 Boundary Treaty between the United States and Mexico. Under these treaties, either of the countries may construct flood control works or water diversion structures. The 1944 treaty specifies that at least one-third of the combined annual flow volume from the six Mexican rivers that feed the Rio Grande belongs to the United States. This treaty also requires that the discharge must total at least 350,000 acre-feet annually, based on a five-year moving mean average. The International Boundary and Water Commission is responsible for implementing these treaties.

Under a letter of intent, an agreement between the U.S. Department of the Interior and the Secretariat of Environment, Natural Resources and Fisheries of the United Mexican States for joint work in natural protected areas on the United States–Mexico border, the two agencies plan to expand cooperative activities in the conservation of contiguous natural protected areas in the border zone and to consider new opportunities for cooperation in the protection of natural protected areas along the international border. Nothing in this *General Management Plan* would conflict with the letter of intent.

RELATIONSHIP TO OTHER PLANNING DOCUMENTS

This plan has been developed in coordination with the Big Bend National Park *General Management Plan* scheduled for completion in 2003. That plan will leave all planning decisions concerning the Rio Grande Wild and Scenic River to this plan. Nothing in this plan will conflict with the goals or objectives of the park's *General Management Plan*, and nothing proposed in that plan will conflict with river management goals as described in this document. No proposal in the park's plan would adversely affect any value or use of the river.

A *Recreational River Use Management Plan* prepared by the Big Bend National Park staff and approved in 1997 is an implementation plan describing specific actions for managing recreational uses on the Rio Grande in Big Bend National Park. That plan would be revised to implement actions specified in this *General Management Plan*.

Other plans of Big Bend National Park are as follows:

- Water Resources Management Plan* (1995)
- Backcountry Management Plan* (1995)
- Wildland Fire Management Plan* (1994)
- Castolon Long Range Interpretive Plan* (1980)
- "Drought Contingency Plan" (draft in preparation)
- "Water Conservation Plan" (draft in preparation)

These park plans would complement the implementation of this *General Management Plan*.

DEFINITIONS OF SPECIAL TERMS

Some of the special terms used in this document are defined below:

Boundary, absolute—the legal private property boundary.

Boundary, wild and scenic river—A line located on the United States shore (as set forth in this plan), which includes only such land as is visible from the river and extends from the ordinary high water mark, inland not more than 0.25 mile, whichever is less. It could extend to the farthest sight distance (for example, a canyon rim) up to a maximum of 0.25 mile from ordinary high water mark, depending on the specific outstandingly remarkable values present. The boundary marks the area within which the manager will focus work with local communities and landowners in developing effective strategies for protecting river values.

Classification—A designated river (or segment of a river) must be classified as either *recreational*, *scenic*, or *wild* according to the criteria listed under those terms, below.

Corridor/river area—The area between (1) the international boundary of the United States and Mexico and (2) the wild and scenic river boundary. Within the river area the United States has the authority to purchase land or property rights from a willing seller and may assist landowners in the management of resources.

Free-flowing—a river or river segment existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway.

Ordinary high water mark—The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a distinct natural line impressed on the bank, shelving, changes in the character of

PURPOSE AND NEED

soil, the destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Outstandingly remarkable value—A term used in the Wild and Scenic Rivers Act meaning a river-related value that may be unique, rare, or exemplary, based on professional judgment within a regional comparative scale.

Recreational river—A river or section of a river that is readily accessible by road or railroad, that may have some development along the shoreline, and that may have undergone some impoundment or diversion in the past. Recreational segments do not necessarily provide exceptional recreational opportunities.

Scenic river—A river or section of a river that is free of impoundment, with shorelines

or watershed still largely primitive and shoreline largely undeveloped, but accessible in places by roads. Scenic segments do not necessarily possess outstanding scenery.

Wild river—A river or section of a river that is free of impoundment and generally inaccessible except by trail, with watershed or shoreline essentially primitive and water unpolluted. Wild rivers represent vestiges of primitive America. Wild segments are not necessarily fast-moving white water.

Wild and scenic river —A segment of river designated by Congress as a component of the national wild and scenic river system.

PURPOSE, SIGNIFICANCE, AND GOALS

MISSION STATEMENT

The National Park Service at the Rio Grande Wild and Scenic River, through cooperative management, preserves and protects the free-flowing state and the natural, cultural, and scenic conditions of the river and its immediate environment for the benefit and enjoyment of present and future generations.

PURPOSE AND SIGNIFICANCE OF THE RIO GRANDE WILD AND SCENIC RIVER

Purpose

The Rio Grande Wild and Scenic River was designated in 1978 for the following *purposes*:

- ★ to preserve the free-flowing condition and essentially primitive character of the river (except as provided by treaties)
- ★ to protect the outstanding scenic, geologic, fish and wildlife, recreational, scientific, and other similar values of the river and its immediate environment
- ★ to provide opportunities for river-oriented recreation that is dependent upon the free-flowing condition of the river and consistent with the primitive character of the surroundings

Significance

The Rio Grande Wild and Scenic River is *significant* as part of a valuable and largely intact ecological system representing major riparian and aquatic habitat associated with the Chihuahuan Desert. Spectacular river canyons, the primitive character of the river, and its international flavor combine to form a stimulating

environment for a high quality scenic and recreational experience. Protecting and managing this outstanding natural resource extends a valuable opportunity for international cooperation between the United States and Mexico.

GOALS

Resource Management Goals

The planning team and partners developed the following goals in response to issues and concerns presented by the public and park staff:

- Preserve the river in its natural, free-flowing character and the purposes for which it was designated, and permit historical uses such as boating and fishing.
- Conserve or restore wildlife, scenery, natural sights and sounds, and other resources of the river corridor and its immediate environment.
- Prevent adverse impacts on natural and cultural resources through proactive visitor use management and on private lands through landowner agreements.
- Achieve cooperative protection of cultural resources in the river corridor.
- With regional and binational partners, strongly advocate for scientifically determined suitable instream flow levels to support fish and wildlife populations, riparian communities, and recreation opportunities.
- Maintain water quality at, or improve it to, levels consistent with the Clean Water Act and federal or federally approved state water quality standards.

Visitor Use Goals

- For visitors, afford opportunities for safe and enjoyable visits and for increasing their understanding and appreciation of the Rio Grande.

PURPOSE AND NEED

- Afford opportunities for high quality visitor experiences by limiting public access to that now approved or commonly used and by establishing use limits based on historic levels.
- Retain opportunities for visitors to experience solitude.
- Require river users to respect adjacent private property and the lands and people of Mexico.

Cooperative Management Goals

- Manage the Rio Grande Wild and Scenic River as a cooperative venture with other federal agencies, state agencies, local governments, concerned citizens, and the government of Mexico.
- Ensure that the management of the wild and scenic river does not infringe on private property rights.

ISSUES AND IMPACT TOPICS

This *General Management Plan / Environmental Impact Statement* addresses major planning issues — the resources and values that may be at stake in choosing one course of action over another.

PUBLIC INVOLVEMENT

The public involvement that was arranged during the preparation of this document is detailed in the “Consultation and Coordination” chapter, beginning on page **Error! Bookmark not defined.** The public was notified of scoping meetings through press releases and the first planning newsletter, and the planning team arranged public scoping meetings in May 2000 in Study Butte, Alpine, Sanderson, and Austin, Texas, to introduce the public to the planning process and solicit comments. A workshop for landowners was conducted in February 2001 in Sanderson to give private landowners an opportunity to present their concerns and to work on some important issues.

Public meetings in June 2001 in San Antonio, Alpine, and Study Butte informed participants about the status of the planning effort, and comments were received about planning issues and outstandingly remarkable values. A reply form encouraging people to submit comments about issues was included with the third newsletter, and 25 comments were received from that mailing.

ISSUES AND CONCERNS

As a part of the scoping mentioned above, many issues and concerns were identified by the park staff, other agencies, and the general public. These issues and concerns were then grouped and summarized by topic as follows.

Recreation and Tourism

Recreational Activities. Current recreational activities in the wild and scenic river area are

whitewater boating, camping, hiking, motorized craft fishing, established fishing camps, and public hunting in the Black Gap Wildlife Management Area. The public has expressed concern that the National Park Service might implement new regulations that could limit or restrict certain recreational activities.

Visitation Limits. Limited public access and the inaccessibility of the river have effectively limited the numbers of river users. Public comments have suggested that limiting visitation to the current estimate of 1,100–1,500 per year would be acceptable.

Rules and Regulations. The enforcement of state and federal rules and regulations has been questioned. Jurisdictional issues between Texas State Parks and Wildlife and the National Park Service occasionally strain relationships between the agencies. Some people are uncertain about which rules and regulations are enforced by the National Park Service.

Access and Egress. Public access to the Lower Canyons is limited to Heath Canyon and possibly the Black Gap Wildlife Management Area. Egress from the river at Dryden Crossing is by the will of the landowner. No agreements exist between the National Park Service and this property owner to allow for public egress. Changes in ownership or abuse of the takeout privilege could result in floaters having to take out their boats 50 miles downstream at Langtry.

Weather and Safety Hazards. Isolated thunderstorms can cause flash floods in side canyons or on the main stem of the Rio Grande. This is a potential danger for river users, who could be trapped by rising floodwaters. Addressing the safety of boaters and other visitors from floods or other hazards is an identified concern.

Infrastructure. The Rio Grande is a regional tourist attraction. The infrastructure for adequate support of visitors is perceived to be lacking, and comments have been received saying that the National Park Service does not do enough to

encourage appropriate nature-based tourism and associated economic development in the surrounding gateway communities.

La Linda Bridge. The reopening of the La Linda bridge could affect visitor use and commercial traffic.

Development Threats to Wildness. Increased pressure of residential development and fishing camps along the river and canyon rims threaten the scenic and rugged characteristics of the wild and scenic corridor.

Natural Resources

Loss of Aquatic Species. The Rio Grande Wild and Scenic River has lost five species of fish and possibly could lose mussel species and a turtle. Inadequate river flows are compromising aquatic and terrestrial species and their associated habitat.

Threatened, Endangered, and Sensitive Species. The Rio Grande corridor serves as important habitat for several state-listed and federally listed threatened and endangered species. The river corridor also could provide sufficient habitat to reintroduce or strengthen critical species.

Visitor Effects on Resources. Increased visitor use in the Lower Canyons could adversely affect or endanger important natural resources such as springs, riparian areas, and nesting areas for wildlife.

Exotic Species. Invasive or introduced species such as tamarisk (salt cedar) and nutria have been observed along the river corridor. There is concern about ways to control these species and the impacts they could have on native plants and wildlife.

Cultural Resources

Cultural Sites on Private Land. Prehistoric and historic sites are abundant along the river corridor, mostly on private property in the United States or Mexico. Preserving these sites

is important in understanding human use and development along the river. The National Park Service and other agencies need ways to work with private property owners to protect and/or stabilize significant cultural sites.

Artifact Disturbance and Unauthorized Collecting. The historical records of cultural and historic sites continually are threatened by river users who collect artifacts and otherwise disturb the sites.

Water Resources

Water Flow. Decreased water flow threatens fish and wildlife populations, riparian habitat, and recreational opportunities. River flow data that have been collected indicate that instream flows decreased by 50% in the past 20 years. Some people predict this trend will continue over the next 10 or more years.

Instream Flow. The National Park Service and other wild and scenic river partners need cooperation from upstream water users in the United States and from Mexico to be able to resolve the instream flow issue.

Contamination of Springs. Natural springs along the river could be adversely affected by public use. There is a possibility of contamination.

Water Quality. The quality of water in the Rio Grande through the Big Bend region is highly variable. Big Bend National Park employees sample the water for bacterial levels monthly at several locations in the park. An incubation period of 24 hours is required, delaying results and preventing timely notification about poor water quality conditions. Sample results have shown a correlation between river flow levels and high bacteria counts.

Pollution and Contact Recreation. After rainstorms and when flow levels are rising, the bacterial counts of the water rise and may exceed the recommended levels for contact recreation such as swimming. This probably is caused by runoff from creeks and other tributaries carrying

animal waste and other pollutants into the Rio Grande. This occurs primarily during the summer monsoon season, between June and October, but it can happen at any time of year.

Landowner Interests

Resolving boundary issues and landowner concerns has been a priority of the Rio Grande Partnership Team. Many innovative solutions to respect property rights and conserve the wild and scenic river have been considered.

Liability. Some landowners are concerned about personal liability if river users should injure themselves while hiking or camping along the river and side canyons.

Boundaries and Property Rights. Some landowners are opposed to having an administrative boundary placed on their property, saying that this would be an infringement of their property rights. They also have expressed concern about possible restrictions on developing their property if a wild and scenic river boundary is put into place. Some landowners resent what they see as U.S. government interference in their use of their private property.

Definitions of Values. The National Park Service needs to define clearly what outstandingly remarkable values need to be protected.

River Below Wildlife Area. A total of 127 miles of river below the Black Gap Wildlife Management Area is on private land. It is unclear how this area would be managed.

River User Misbehavior. Landowners have complained about river user behavior: crossing private land without permission to reach the river, leaving trash at campgrounds, trespassing, and adversely affecting historic and cultural sites.

Legal Issues

Illegal Entry? River users who camp on the Mexican bank of the Rio Grande may be illegal-

ly reentering the United States because this is not at an authorized border crossing.

Jurisdiction. Law enforcement jurisdiction on the wild and scenic river needs to be clarified, and NPS authorities need to be defined.

Partnerships and Administrative Relationships

Funding. Big Bend National Park staff and the public have expressed opinions that available funding is inadequate to administer the wild and scenic river. Funds are used primarily for regularly scheduled river patrols.

Outfitters. Commenters have said that local outfitters are an excellent source of knowledge of the river's resources and that the National Park Service should make use of this source to help manage the wild and scenic river. The appropriate roles and responsibilities for outfitters in river planning need to be determined.

International Commission. The National Park Service needs to ascertain if there is a role for the International Boundary and Water Commission in planning for the Rio Grande Wild and Scenic River.

Mexico as a Partner. Mexico cannot be left out of the river planning process. It is important to find out what levels of concurrence or agreement are needed for river planning. If the state of Texas, counties, and owners of private property are willing to conserve the Rio Grande corridor, having Mexico's active participation in planning for and protecting the river is critical.

IMPACT TOPICS

The issues and concerns described above were used to determine distinct impact topics. Each topic listed in this section is a resource or value at stake in the planning process. These topics are used throughout the document to facilitate the analysis of the environmental consequences. This allows for a comparison between alternatives on the basis of the most relevant information. In addition to the concerns raised during

the public scoping process, when deciding on the impact topics, the planning team considered the requirements of federal laws, regulations, and orders; NPS *Management Policies 2001*; and the team members' knowledge of sensitive resources. A brief rationale for the selection of each impact topic is given below.

Scenic Values

Scenery, or visual quality, is an outstandingly remarkable value of the Rio Grande. Scenic value might be affected by development along the shore; therefore, it is included as an impact topic.

Fish and Wildlife

The riparian corridor created by the Rio Grande supports diverse biotic communities that could be affected by the implementation of planning actions.

Special Status Species

Four federally listed species of plants and fish and wildlife are found in or near the river:

- Big Bend gambusia
- black-capped vireo
- bunched cory cactus
- Chisos Mountains hedgehog cactus

The management actions prescribed by this plan would have the potential to affect listed species; therefore, this topic is included for analysis.

Archeological Resources

Known archeological resources along the Rio Grande reveal a human presence in the region throughout a period of 12,000 years (NPS 1981). Alternatives presented in this plan could affect archeological resources.

Historic Structures

Four sites within the river corridor in Big Bend National Park are on the National Register of

Historic Places, and others may be eligible. There are five known historic sites in the Lower Canyons. The actions of the alternatives presented in this plan could affect historic resources.

Visitor Experience and Understanding (Recreational Use)

Typically, traditional uses are allowed to continue on a wild and scenic river once it has been designated. Some controversy arose during scoping regarding the use of motorized craft. Recreation is considered an outstandingly remarkable value, and this plan could place limits on recreational use. For these reasons, the topic of visitor experience and understanding is included for analysis.

Water Quality and Quantity

Most of the outstandingly remarkable values that led to the designation of the Rio Grande Wild and Scenic River depend on adequate amounts of flowing water. For this reason, water quality and quantity are included as impact topics.

There is general agreement that pursuing a management plan for the wild and scenic river would not make sense if there was not enough water flow to sustain such values as recreational use, fisheries, and riverside vegetation. Water flow has been dropping over the past 20 years. River flows could be severely reduced by upstream impoundments and diversions, compounded by additional water needs for development and cultivated lands along the Mexican Rio Conchos, the Rio Grande, and their tributaries. These conditions, exacerbated by recurring droughts, could effectively eliminate river recreation for parts of the year. Although many river flow issues are beyond the scope of this document, the preferred alternative includes actions and the possibility of partnerships that could help to improve the flow conditions.

Vegetation

Vegetation along the river is part of the riverine ecosystem that is critical to many forms of life in

the Chihuahuan Desert. One concern is that tamarisk, giant river cane, and other invasive nonnative plant species are spreading along the river. This plan has the potential to affect riverside vegetation; therefore, vegetation is analyzed as an impact topic.

Nonfederal Lands within the River Boundary

The Wild and Scenic Rivers Act requires that a boundary be legally established for each federally administered river in the national system. Where private lands are involved, the river boundary marks the area within which managers will focus work with local communities and landowners to develop effective strategies for protection. Existing landownership, whether federal or nonfederal, should not be a factor in determining boundaries.

The boundary of a designated river is established by a management plan. The enabling legislation for the Rio Grande Wild and Scenic River (PL 95-625) calls for “the establishment of a detailed boundary which shall include an average of not more than 160 acres per mile.” This maximum 160 acres per river mile equates to a corridor of land averaging 0.25 mile wide on the American side of the river.

The *Draft General Management Plan / Development Concept Plan* for the Rio Grande Wild and Scenic River that was written in 1981 (NPS 1981) would have established a boundary from the international border in the center of the river to the gradient boundary on the United States side. The state of Texas defines the gradient boundary as midway between the lower level of flowing water that just reaches the lower cut bank and the higher level of flow that reaches the top but does not overflow the cut bank. That plan was not implemented because the gradient boundary was determined to be inadequate to protect the identified outstandingly remarkable values.

A 1986 amendment to the Wild and Scenic Rivers Act specifies that the boundaries for all wild and scenic rivers for which permanent boundaries have not been established “shall generally

comprise that area measured within one-quarter mile from the ordinary high water mark on each side of the river.” Although this legislation has included private lands within the current default boundary of the Rio Grande Wild and Scenic River, management restrictions apply only to public lands. The federal government has no power to regulate or zone private lands, including those within the boundary. The boundary marks the area within which the manager will focus work with local communities and landowners in developing effective strategies for protecting river values.

Many private landowners along the Lower Canyons of the Rio Grande in Brewster and Terrell Counties, Texas, acquired their land before the designation of the Rio Grande Wild and Scenic River. Some of those landowners opposed the legislation designating the wild and scenic river. The National Park Service recognizes and understands landowner concerns about condemnation. Through this planning effort, the National Park Service and the landowners may recognize the common interest in preserving the Rio Grande as a wild and scenic river and the advantages of participation in its management by the landowners, the National Park Service, and the state of Texas.

Resolving boundary issues and landowner concerns has been a priority for the Rio Grande planning effort. This topic is included because of past controversy and ongoing opportunities for cooperative partnerships.

Socioeconomic Conditions

The Big Bend region is rural, with an economic base of livestock, agriculture, and mineral extraction. Tourism plays a role in the economies of several local communities in Brewster and Terrell Counties. In addition, there are neighbors of the wild and scenic river that could be affected by the actions of the alternatives. The topics discussed are businesses and park neighbors, the impact of spending for recreation, river operators and hotel and motel operators, and the local and regional economy. The possible local and regional economic impacts that could result

from implementing the alternatives are analyzed in this document.

Partnerships and International Cooperation

Early in the planning process, the National Park Service recognized that the plan could succeed only by fostering a spirit of cooperation among all entities affected by the designation of the Rio Grande Wild and Scenic River. A partnership team was created to act as liaison between the National Park Service, state and local governments, river users, and private landowners.

Congressional designation of the Rio Grande Wild and Scenic River specified that only the American side of the river is included. However, land uses and environmental practices on either side of the river affect the whole river. Maderas del Carmen and Cañon de Santa Elena are two Mexican federally protected areas adjacent to the Rio Grande. These areas preserve important wildlife habitat and migration corridors and provide unique opportunities for the United States and Mexico to work together toward common resource preservation goals.

Although the Mexican federal government owns and regulates Mexico's half of the river and adjacent lands, boaters and anglers from the United States regularly use the Mexican shore. In addition, land uses in Mexico affect the quality and quantity of water in the river. Although the designation of this stretch of the Rio Grande does not include the Mexican side of the river, it would be important for future management to involve Mexican federal and state governments in cooperative partnerships. This opportunity for international cooperation is discussed in this document.

IMPACT TOPICS DISMISSED FROM FURTHER CONSIDERATION

Soils

Soils are an integral component of the ecosystem, and the amounts and types of plant life and associated animal life in a specific area can be directly related to the type of soil. However,

implementing either alternative would not affect soils, so that topic was dismissed from further consideration.

Geology and Topography

The rocks exposed by the erosive action of the Rio Grande and its tributaries are sedimentary, having been deposited about 100 million years ago. Subsequent uplifting, folding, faulting, and erosion have produced the present topography. Near its upstream end, the Rio Grande Wild and Scenic River has cut through the surrounding rock to form the steep-walled Mariscal and Boquillas Canyons. Downstream from Boquillas Canyon, the river flows across a relatively broad and open floodplain. Near Reagan Canyon, the floodplain narrows abruptly, and the river flows in a continuous deeply cut canyon for almost 40 miles. In the Lower Canyons portion of this segment, the river and its tributaries lie 500 to 1,500 feet below the surrounding plateaus.

Geologic value contributes to scenery and is listed as an outstandingly remarkable value of the Rio Grande; however, it is not included as an impact topic because neither of the alternatives would affect the geology or topography of the Rio Grande region.

Selected Threatened, Endangered, and Candidate Species

In a letter dated July 6, 2000, the U.S. Fish and Wildlife Service listed several species as occurring in Brewster or Terrell County (see appendix B). These species have been dismissed as an impact topic because they are not found in the river corridor. None of the actions proposed in the alternatives of this plan would be likely to affect them. The National Park Service would work with state and federal agencies to monitor populations and ensure that none of these species would be affected in the future.

The bald eagle, a threatened species, is occasionally seen in Big Bend National Park and along the river, but it does not nest in the park. Because its presence in the area is only occasional, the bald eagle would be affected only negligibly,

if at all, by actions taken to implement either alternative of this plan. Therefore, effects on the bald eagle will not be analyzed in this document.

Impacts on the endangered Mexican long-nosed bat, the threatened Lloyd's Mariposa cactus, and candidate species tall paintbrush and Guadalupe fescue have not been analyzed in this document because, although found in the area, they would not be affected by the actions of either alternative of this plan.

The Texas Parks and Wildlife Department, Endangered Resource Branch, provided a special species list for Brewster County. Some species from the state list, other than those already described, are found in the general area. However, they are all unlikely to be affected because they are not in the immediate vicinity of the proposed actions. Therefore, these species have been dismissed from further consideration.

Cultural Landscapes

No cultural landscapes have been officially identified and designated on the river either in or outside of Big Bend National Park.

Ethnographic Resources

The National Park Service defines ethnographic resources as any "site, structure, object, landscape, or natural resource feature assigned traditional, legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it" (DO-28, 181). The Mescalero Apache and Comanche maintain strong cultural connections with Big Bend National Park and the Rio Grande. These groups may make traditional use of cactus and other plants. The only tribal group to request specific use of such resources was the Crow Chapter of the Native American Church, which asked for permission to gather peyote cactus for ritual use.

No traditional cultural properties or other ethnographic resources eligible for the National Register of Historic Places have been identified in the river corridor. Big Bend National Park

would continue to consult with tribal representatives in the interest of providing access for traditional use areas. The park also would attempt to ascertain and address potential concerns about impacts on vegetation or other resource issues related to project undertakings. In addition, copies of this document will be forwarded to each affiliated tribe or group for review and comment. If subsequent issues or concerns should be identified, appropriate consultation would be undertaken. Any ethnographic resources identified in the future would be protected according to existing laws and policies

Night Sky

The National Park Service recognizes that the night sky over the Rio Grande contributes significantly to the visitor experience. NPS policy states that the Park Service will seek to minimize the intrusion of artificial light into the night scene. At present, artificial light sources within and outside of Big Bend National Park do not diminish night sky viewing opportunities on the river. This condition will be maintained.

Soundscapes

Under NPS *Management Policies 2001*, park managers are required to "strive to preserve the natural quiet and natural sounds associated with the physical and biological resources of parks." An example would be the sound of flowing water. Natural sounds predominate along most of the river. Allowing motorboats on some river segments would disturb the natural quiet, but visitors have opportunities to experience undisturbed natural sounds in other segments. The sounds of civilization generally are confined to developed areas such as Rio Grande Village.

Energy, Depletable Resource Requirements, and Conservation Potential

Consideration of energy, depletable resource requirements, and conservation potential is required by 40 CFR 1502.16. Both of the alternatives analyzed in this document would include the conservation of natural resources, and imple-

menting either alternative would not require a significant expenditure of energy.

Urban Quality and the Design of the Built Environment

The regulations in 40 CFR 1502.16 require consideration of urban quality and the design of the built environment. Urban areas and vernacular designs are not considerations in this exceptionally rural environment.

Air Quality

Big Bend National Park is designated a class I air quality area under the provisions of the Clean Air Act, as amended in 1977. The section of the river downstream of the park is in a class II area. Air quality in the entire Big Bend region has deteriorated dramatically over the past 20 years, and at times Big Bend has the worst air quality of any national park in the western United States. Windblown dust, natural aerosols, and long-range transport of sulfates all threaten visibility and air quality.

Coal-fired power plants in both Mexico and the United States are suspected of being the primary sources of the haze that increasingly blankets the region, particularly during the summer months. A definitive ongoing air quality study, the Big Bend Regional Atmospheric and Observational Study (BRAVO), should help determine the exact sources of this pollution. It is recognized that poor air quality affects such issues as scenery and the quality of the recreational experience. If severe enough, poor air quality could affect vegetation, fish, and wildlife.

None of the actions in either alternative would affect air quality.

Public Health and Safety

River running (boating) and other outdoor recreation activities pose some inherent risks. The actions proposed in the alternatives in this document would not result in any change to existing human health or safety concerns. Public infor-

mation and education efforts include safety messages, and these would continue under either alternative.

Wilderness

Some parts of the Rio Grande in Big Bend National Park are adjacent to areas proposed for designation as wilderness. These areas were identified as having a primitive and largely untrammelled character. According to the *Final Environmental Statement: Proposed Wilderness Classification* for Big Bend National Park (NPS 1984), "In the three major river canyons of the Rio Grande, the wilderness boundaries include all of the cliffs down to the waterline of the Rio Grande." The river itself is not included in the wilderness proposal, but the river management area would overlap areas proposed for wilderness.

Segments of the Rio Grande that are classified as *wild* align with adjacent proposed wilderness areas, and the management goals of the wild segments are compatible with wilderness management goals. If Congress designated those proposed areas as wilderness, that designation would complement the wild and scenic river designation. Any part of a wild and scenic river that is within a designated wilderness is subject to the provisions of both the Wilderness Act and the Wild and Scenic Rivers Act. In case of conflict between the provisions of the two acts, the more restrictive provisions would apply. The management of the wild and scenic river through either of the alternatives would not affect wilderness values or possible designation.

Floodplains and Wetlands

Neither alternative of this plan would involve additional construction in, or disruption of, the Rio Grande or adjacent floodplains, and neither would entail filling in or disturbing any wetland. There are some floodplain issues at Rio Grande Village, but they will be addressed in the forthcoming general management plan for Big Bend National Park. Management prescriptions in the preferred alternative of that plan would protect

the river's natural resources, including water quality and quantity. Therefore, the topics of floodplains and wetlands have been dismissed from further consideration.

Prime and Unique Farmlands

The Council on Environmental Quality directed in August 1980 that federal agencies must assess the effects of their actions on farmland soils classified as prime or unique by the Natural Resources Conservation Service, U.S. Department of Agriculture. Prime or unique farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. Neither Brewster nor Terrell County contains soils with properties that would classify them as prime or unique farmlands.

Indian Trust Resources

No lands in the Rio Grande Wild and Scenic River are held in trust by the secretary of the

interior for the benefit of American Indians due solely to their status as American Indians.

Environmental Justice

Executive Order 12898, *General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. Neither alternative of this document would result in adverse health or environmental effects on socially or economically disadvantaged populations or communities as defined in the Environmental Protection Agency's *Environmental Justice Guidance* (1998).

Alternatives, Including the Preferred Alternative



INTRODUCTION

The alternatives for managing Rio Grande Wild and Scenic River are described in this chapter. Alternative A, Existing Management Direction, the no-action alternative, would continue the current management. Alternative B, Enhance Resource Protection While Continuing High-Quality Visitor Experiences, is the alternative preferred by the National Park Service. In this alternative, emphasis would be placed on protecting natural and cultural resources and the visitor experience in the Lower Canyons (outside Big Bend National Park boundaries) and on establishing a more meaningful and mutually agreed-upon boundary of the wild and scenic river.

Only one action alternative was developed in the planning process for the following reasons:

- The NPS planning team and the Rio Grande Partnership Team realized that there was an almost unanimous vision for the future of the river among local governments, landowners, environmental groups, and the public. As was demonstrated in the comments received, almost everyone expressing an interest in the river had similar concerns and ideas for its long-term management.

- Much of the river is adjacent to private or state lands. Successful management of the river corridor will depend on the implementation of individual landowner agreements that call for specific boundaries and detail specific responsibilities of the parties involved. The National Park Service and the landowners would be legally bound by these agreements, and there can be only one management approach to entering into these agreements.
- A stricter protection-oriented alternative that would severely curtail recreational use never would have political, state, or local support for implementation

Therefore, the planning team and partners agreed that any other alternative would be unrealistic and have no real merit.

The alternatives are compared in table 8 (p. 49), in which the key differences between them are displayed. The potential environmental consequences of the alternatives are compared in table 9, page 50.

ALTERNATIVE A: EXISTING MANAGEMENT DIRECTION (NO ACTION)

INTRODUCTION

In this alternative, no management plan for Rio Grande Wild and Scenic River would be implemented; the wild and scenic river would be managed according to the Wild and Scenic Rivers Act and Big Bend National Park plans. “No action” does not imply discontinuing the present uses or management actions or removing the existing designation. The no-action alternative does not include any park zone prescriptions because zoning is not a part of the current management practices. (Current management is indicated on the Location / Current Management map, p. **Error! Bookmark not defined.**) This refers to management zones applied to National Park lands and not to zoning designations on private lands.)

The National Park Service would respond to future needs and conditions associated with the existing wild and scenic river designation without major actions or changes in course. The management of the river would continue to comply with the Wild and Scenic Rivers Act and associated guidelines, NPS *Management Policies 2001*, and current management and implementation plans.

In cases where the management actions for the river in Big Bend National Park would differ from those pertaining to wild and scenic river segments outside the park, the alternative description clearly identifies the actions that would apply to segments of the Rio Grande through the national park and those that would apply to segments of the Rio Grande through state and private lands downstream from the park.

RIVER MANAGEMENT

Section 10(a) of the Wild and Scenic Rivers Act says the following:

Each component of the national wild and scenic rivers system shall be administered in such a manner as to protect and enhance the

values which caused it to be included in said system. . . . Primary emphasis shall be given to protecting its esthetic, scenic, historic, archeological and scientific features. Management plans of any such component may establish varying degrees of intensity for its protection and development, based on special attributes of the area.

The National Park Service interprets this to mean a nondegradation and enhancement policy for all designated rivers, regardless of classification. This requirement, as well as others from the act, would be followed. However, in this alternative, management decisions would not be subject to a uniform and comprehensive set of criteria, considerations, or management prescriptions.

The National Park Service would continue the existing access to the river, enforcing the current rules and regulations to protect river values and respond to emergencies in the river corridor. The degree to which this would be carried out would depend on the available funding. The National Park Service would continue to have authority and jurisdiction to manage activities on the river as granted by the Wild and Scenic Rivers Act.

Management responsibility for the Rio Grande Wild and Scenic River would remain as it is at present, as shown in table 1.

TABLE 1: OWNERSHIP OF LAND
ALONG RIO GRANDE WILD AND SCENIC RIVER

Ownership	River Miles	% of Total
Private	101.1	51
Federal (Big Bend NP)	71.4	36
State of Texas	26.7	13
Total	199.2	100

Boundary

The official management boundary of the Rio Grande Wild and Scenic River would remain the default boundary of 0.25 mile from the ordinary high water mark on the United States side.

Management of Corridor on Nonfederal Lands

The existing default 0.25-mile management boundary also would remain in effect on segments outside of Big Bend National Park. However, the wild and scenic river designation does not affect nonfederal lands, and the National Park Service has no authority to enforce its rules or regulations on state or private land along the river. Developments and other land uses on nonfederal lands in the river corridor would continue without NPS input. No agreements would be made with landowners for cooperative management and the protection of resources.

LAND ACQUISITION AND RIGHTS-OF-WAY

The U.S. federal government could acquire, including through the use of eminent domain, lands and interests in land under the Wild and Scenic Rivers Act.

NATURAL RESOURCES

The Wild and Scenic Rivers Act clearly states that the jurisdiction and responsibility of the state to manage fish and wildlife is not affected by the federal designation. Under this no-action alternative, the National Park Service would adhere to existing laws and policies for managing natural resources on park land according to the *Big Bend General Management Plan*. The National Park Service would continue to cooperate with the U.S. Fish and Wildlife Service and the state of Texas in managing sensitive species in Big Bend National Park and on the river.

The National Park Service has no authority to manage nonfederal lands adjacent to the river outside of Big Bend National Park, or the flora and fauna on those lands. No actions would be taken regarding these resources on nonfederal lands without landowner permission.

CULTURAL RESOURCES

The National Park Service would observe existing laws and policies for protecting cultural

resources on federal land (wild and scenic river segments within Big Bend National Park) including historic structures, archeological resources, and ethnographic resources. The management of cultural and ethnographic resources would be prescribed in the *Big Bend General Management Plan*.

The National Park Service does not have the authority to manage nonfederal lands adjacent to the river segments outside of Big Bend National Park or the cultural resources on those lands; therefore, no action would be taken regarding cultural resources on nonfederal lands without landowner permission.

VISITOR EXPERIENCE AND UNDERSTANDING

Historic and traditional uses of the river such as fishing, sightseeing, nature watching, swimming or wading, and boating would continue in this alternative. Rafts, canoes, kayaks, and motorized watercraft would be allowed on the river as at present. The established practice of private and commercial boaters spending a number of days to float through the Lower Canyons would not be affected.

There would be no change to the existing recreational access points in Big Bend National Park under this alternative. River access outside the park would continue to be at the discretion of the landowners. It is possible that private landowners or the state of Texas could develop new river access points or close existing points at any time. The default 0.25-mile boundary would remain in effect and could lead landowners to close their lands to public use.

The *Recreational River Use Management Plan* for Big Bend National Park (NPS 1997) would remain in effect, and the National Park Service would continue to require a permit to float the river. Existing recreational use limits on segments of the wild and scenic river in the park would continue to be in effect as shown in table 2, but those regulations would be subject to change if the plan was revised.

The following restrictions on motorized watercraft would continue according to the 1997 *Recreation River Use Management Plan*:

- Mariscal Canyon (classified *wild*) would continue to be closed to all motorized watercraft except during October (to provide a diversity of experience). Motors up to 60 horsepower could be used in October only.
- Motorized watercraft would continue to be prohibited in the wild segment that includes Boquillas Canyon to provide a wilderness experience.

The National Park Service would continue to require permits for floating the river. Commercial boaters would be required to get the appropriate business permit/contract and pay the required fees. Private boaters would have to obtain a permit. This would allow the National Park Service to deliver important safety and emergency information and monitor recreational use.

Fishing would continue to be allowed according to established policy. Hunting on state and private lands would continue to be allowed according to state regulations. Hunting is not allowed

in Big Bend National Park. NPS management responsibilities would be limited by the lack of administrative access to private lands.

PARTNERSHIPS AND INTERNATIONAL COOPERATION

Because the Rio Grande Partnership Team's primary function is involvement in the planning effort, it would be disbanded after a decision was made to accept the no-action alternative. No formal relationship with government entities in Mexico regarding river management would be initiated.

IMPLEMENTATION

The managers of Big Bend National Park would continue to manage the designated segments as at present, according to existing laws and policies. Management emphasis and related staffing allocations would be retained as identified in other approved documents such as the *Recreational River Use Management Plan: Big Bend National Park* (NPS 1997).

TABLE 2: EXISTING RECREATIONAL RIVER USE LIMITS IN BIG BEND NATIONAL PARK

Segment	Private Party Limits (Maximums)		Other Limits
	Persons per Launch	Launches per Day	
Western park boundary to Santa Elena Canyon takeout, Santa Elena takeout to Cottonwood Campground	30	11	6 commercial companies may each launch a combination of day or multi-day trips per day, and 1 special use group launch per day
Cottonwood Campground to Reed Camp, Reed Camp to Talley	30	11	3 commercial companies may each launch a combination of day or multi-day trips per day, and 1 special use group launch per day
Talley to Solis	20	10	1 commercial company may launch 1 day trip or multi-day trip per day; 1 other commercial company may launch a 1-day trip; 3 special use groups may launch per week
Solis to La Clocha, La Clocha to Boquillas	30	11	3 commercial companies may each launch a combination of trips per day, and 1 special use group launch per day
Boquillas Canyon entrance to eastern park boundary	20	10	3 commercial companies may each launch a combination of -day trips per day, (if 3 launches occur, at least one must be after noon) 3 special use groups may launch per week
On the Rio Grande downstream from Big Bend National Park, 20 persons, not including guides, may launch per trip. No annual limits.			

ALTERNATIVE B: ENHANCE RESOURCE PROTECTION WHILE CONTINUING HIGH-QUALITY VISITOR EXPERIENCES (PREFERRED ALTERNATIVE)

INTRODUCTION

The planning team developed the preferred alternative on the basis of comments from the public, the park staff, and the Rio Grande Partnership Team and by considering the river's purposes and significance. This alternative includes a long-term framework for resource protection and management, visitor use management, and other factors. All actions described in the preferred alternative are consistent with NPS policies and would not conflict with the forthcoming Big Bend *General Management Plan* (see the Alternative B map).

In cases where the management actions for the river in Big Bend National Park would differ from those pertaining to wild and scenic river segments outside of the park, the description of the preferred alternative clearly defines the actions that would apply to segments of the Rio Grande through Big Bend National Park and those that would apply to segments of the Rio Grande through state and private lands downstream from the park.

MANAGEMENT PRESCRIPTIONS

A management prescription is an approach for managing a specified area based on desired future conditions. Prescriptions include target goals or objectives for resource conditions and visitor experience within the prescription area (zone). Different environmental and social conditions are emphasized in each zone.

Management Prescriptions Common to All Zones

The following prescriptions would apply to all the management zones:

Biological Resources. NPS goals would be to preserve the natural abundance and diversity of

native plant and animal populations, to restore native plant and animal populations that have been extirpated by past human-caused actions, and to minimize human impacts on native plant and animal populations and habitats. The health and sustainability of native wildlife and plant populations and their related habitat and natural landscapes would be maintained within natural fluctuations. NPS policy is to restore native populations whenever there is adequate habitat and the species does not pose a serious threat to people in the park, park resources, or persons or property outside park boundaries and when the genetic type of introduced individuals most nearly approximates the extirpated type and the species' disappearance resulted from human-induced actions.

It is also NPS policy that exotic species be managed — up to and including eradication — if (1) control is prudent and feasible and (2) the exotic species does any of the following:

- interferes with natural processes and the perpetuation of natural features, native species, or natural habitats
- disrupts the genetic integrity of native species
- disrupts the accurate presentation of a cultural landscape
- damages cultural resources
- significantly hampers the management of park or adjacent lands
- poses a public health hazard
- creates a hazard to public safety

NPS policy also mandates encouraging scientific research to inventory natural and cultural resources, monitor resource change, understand natural processes, and inform management decisions about protecting those resources.

Water Resources. The National Park Service would perpetuate surface water and groundwater as integral components of natural ecosystems, to protect unimpeded such natural fluvial processes

as stream meanders and functioning floodplains. By law, rivers designated as wild and scenic are to be managed to maintain their outstandingly remarkable values and characteristics. The National Park Service would seek partnerships to protect parts of the Rio Grande watershed outside the park boundaries.

Cultural Resources. NPS policy is to evaluate and protect cultural resources on park property that are eligible for listing on the National Register of Historic Places. Research, evaluation, inventories, categorization, consultation, planning, and stewardship are included in program management. The long-term preservation of resources includes public access to and appreciation of the features, materials, qualities, and significance of the resources. Treatment methods such as preservation, rehabilitation, or restoration could be used on structures in the river area on lands in the park or on nonfederal land with the owner's permission and as funding allowed.

Geologic Resources. Natural geologic processes such as exfoliation, erosion, sedimentation, and springs would proceed unimpeded. New developments would not be placed in areas subject to dynamic river processes (for example, in the floodplain).

Air Quality. The National Park Service would make an effort to perpetuate the best possible air quality so as to preserve natural and cultural resources and sustain visitor enjoyment, human health, and scenic vistas.

Soundscapes. The National Park Service would preserve to greatest extent possible the natural soundscape such as animal sounds, wind in the canyons, and flowing water. The agency also would seek to protect natural soundscapes from degradation.

Lightscaapes. The National Park Service would seek to preserve natural lightscaapes by protecting natural darkness. Natural processes would not be disrupted by artificial lighting, and the intrusion of artificial light would be minimized.

Other Prescriptions for All Zones. Commercial operators could offer appropriate recreation

activities that would be compatible with goals for the management and protection of resources and the desired visitor experience. Information and education in the form of brochures, information about permits, and other useful data would be available to the public offsite. Public safety information would be made available where appropriate.

The identification and protection of site-specific outstandingly remarkable values would be accomplished through individual landowner agreements. Boundaries, which would be established to protect those values, would be an integral part of the landowner agreements. Patrols and monitoring by NPS law enforcement and resource management personnel would continue. Members of the public and commercial operators would be required to have permits for all watercraft.

Management in Specific Zones

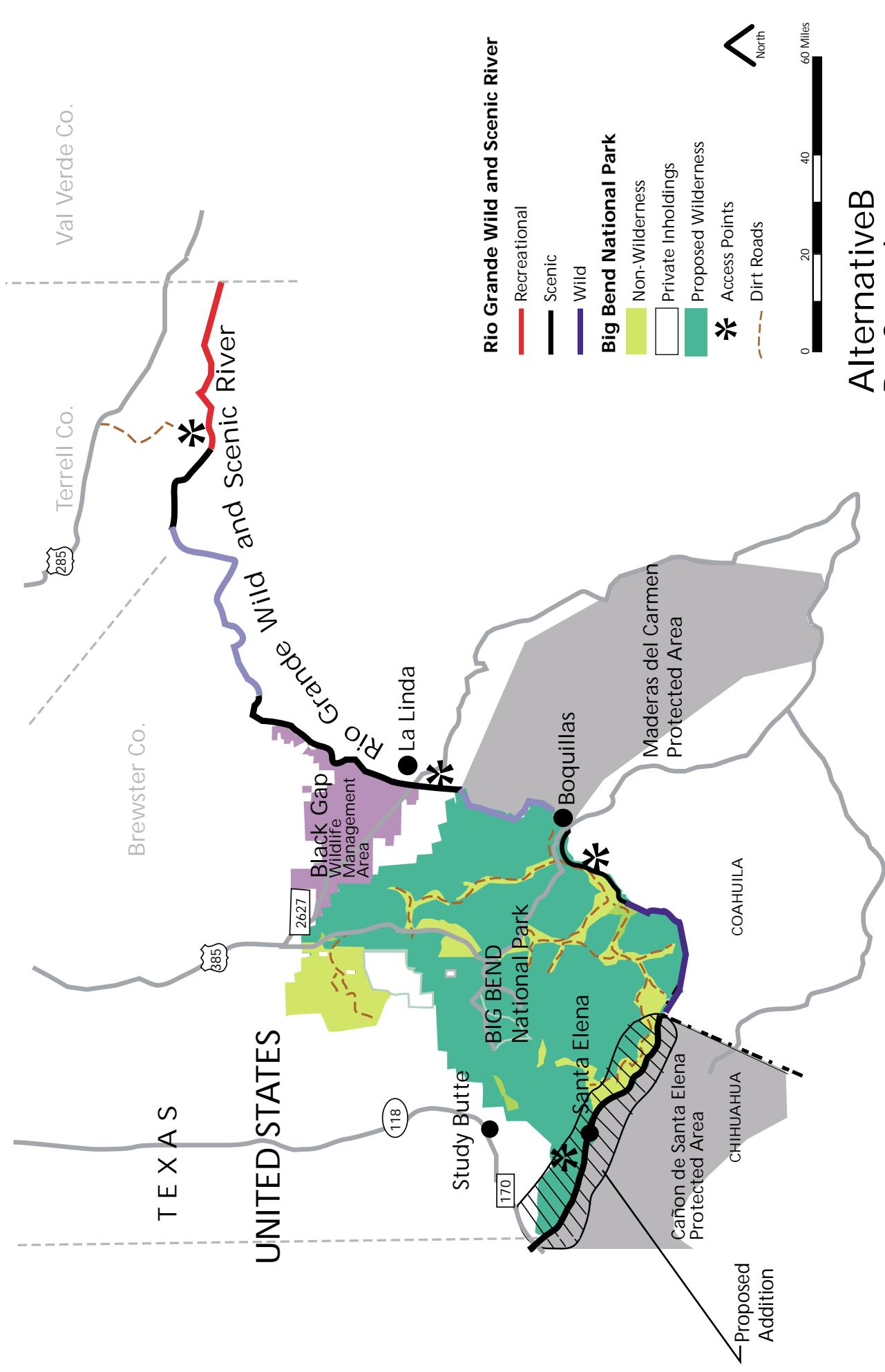
Three management prescriptions (zones) would be assigned to the Rio Grande Wild and Scenic River under this alternative: the wild, scenic, and recreational zones. These zones would be continuous with proposed river classifications shown on the Alternative B map. The management prescriptions for the zones are shown in table 3.

RIVER MANAGEMENT

All Segments

The National Park Service would manage the wild and scenic river in compliance with existing laws and policies, including the Wild and Scenic Rivers Act. Its management would be guided by the passage quoted on page 28, [§10(a)], as well as by all other parts of the act.

The National Park Service would continue to provide access to the river within Big Bend National Park and to make and enforce the rules and regulations necessary to protect river values. NPS staff also would continue to respond to emergencies in the river corridor and would attempt to enhance the management of river



AlternativeB Preferred Alternative

Rio Grande Wild and Scenic River
National Park Service
U.S. Department of Interior
DSC / Sept 03 / 192 / 20004



TABLE 3: MANAGEMENT PRESCRIPTIONS

<u>Management Zones</u>			
	Wild	Scenic	Recreational
Desired Resource Conditions	Natural conditions and processes predominate. Primitive and natural shorelines and natural landscape are retained. Very low tolerance for adverse effects on natural and cultural resources from visitor use. All outstandingly remarkable values are protected, but emphasis is on natural and cultural outstandingly remarkable values. Some cultural sites being used by public might be interpreted, stabilized, or hardened according to landowner agreements.	Conditions and processes are mostly natural; shorelines largely primitive and undeveloped. Natural and historic landscapes are retained as much as possible. Low tolerance for adverse effects on natural and cultural resources from visitor use. All outstandingly remarkable values protected. Some cultural sites being used by public might be interpreted, stabilized, or hardened according to landowner agreements.	Conditions and processes are mostly natural. Historic landscape is maintained as much as possible. Some shoreline development. Moderate tolerance for adverse effects on natural and cultural resources from visitor use. Some cultural sites being used by public might be interpreted, stabilized, or hardened according to landowner agreements.
Desired Visitor Experience and Understanding	Opportunities for challenge, adventure, and solitude. Natural sights and sounds prevail. Visitors gain understanding and a sense of appreciation or respect from direct sensory contact with resources.	Opportunities for challenge, adventure, and solitude. Sights and sounds of nature more prevalent than those of human activities. Views of natural and cultural landscapes supply context for understanding broad concepts of natural systems.	Opportunities for challenge and adventure. Sights and sounds of human activity may be apparent. Geologic and cultural features supply context for understanding broad concepts about human interactions with environment.
Appropriate Level of Use	Smaller carrying capacity based on resource vulnerability to impacts and desired visitor experience. Few to no encounters with other visitors or NPS staff.	Moderate carrying capacity based on historic use levels. Some encounters with others, particularly at river access points.	Larger carrying capacity. Many encounters with other parties.
Appropriate Types of Use	Traditional uses continue. ¹ Camping at undeveloped sites. Excursions on shore where allowed.	Traditional uses continue. ¹ Camping at undeveloped sites. Excursions on shore where allowed.	Traditional uses continue. ¹ Camping at undeveloped and semideveloped (primitive) sites. Excursions on shore where allowed.
Access	Inaccessible from land except by occasional trail. Public access to river is on national park and state lands, rest is private and subject to landowner's permission.	Accessible in some places by road. Public access to river is on national park and state lands or designated public access on private land.	Readily accessible by road (may be across private land).
Appropriate Level of Management Activity	Nonintrusive resource management and restoration. Visitor use restrictions.	Moderate level of resource management activities. Visitor use restrictions.	Intensive resource and visitor use management. Visitor use restrictions.
Appropriate Levels and Kinds of Development on Federal Land	None	Only existing sites retained. Undeveloped or primitive put-in and takeout locations allowed. Undeveloped camping and picnicking sites.	No federal land in proposed <i>recreational</i> segment.
Appropriate Levels and Kinds of Development on Nonfederal Land	Retention of existing primitive facilities and put-in/takeout locations at discretion of landowner. NPS may provide assistance in locating and designing new development to mitigate impacts or removing/restoring old development.	Retention of existing primitive facilities and put-in/takeout locations at discretion of landowner. NPS may provide assistance in locating and designing new development to mitigate impacts or removing/restoring old development.	Enhancement of existing facilities and access allowed through agreements. NPS may provide assistance in locating and designing new development to mitigate impacts or removing/restoring old development.
1. Traditional uses include floating, motorboating (not hovercraft, personal watercraft, or all-terrain vehicle use), fishing, camping, swimming, wading, and hiking in side canyons and to points of interest.			

resources through increased emphasis and specific action outlined in implementation plans.

Under alternative B, NPS rangers would continue to enforce county, state, and federal laws and regulations in cooperation with their counterparts in local, state, and federal agencies — county sheriffs, Texas Parks and Wildlife, Texas Rangers, the Drug Enforcement Agency, the Immigration and Naturalization Service, and the Federal Bureau of Investigation.

The National Park Service would maintain full jurisdiction and authority to enforce applicable federal rules and regulations on the surface water of the designated segments of the river as granted by the Wild and Scenic Rivers Act. A unit manager and sufficient NPS and partner staff would be assigned to fulfill these responsibilities.

Big Bend National Park uses and enforces Texas fishing regulations as the basic guideline for the wild and scenic river to maintain consistency with the state; however, it is not limited to those regulations in the river stretches in the park.

The Rio Grande would be managed according to the segment classifications shown in table 3, page 35. Segments classified as *wild* would be managed to maintain primitive shorelines and outstandingly remarkable values. Segments classified as *scenic* are accessible in places by roads and may contain more development than wild segments. Scenic segments would be managed to maintain river values and the largely primitive and natural-appearing shorelines. More development would be allowed in recreational segments, but those segments would be managed to offer high-quality recreational opportunities while preserving the outstandingly remarkable values.

Segments Adjacent to Nonfederal Land

The actions described above would be applied to all segments of the Rio Grande Wild and Scenic River. The National Park Service has no jurisdiction on state or private lands but would work with landowners to meet the conditions in the prescriptions and would help landowners protect

the resources on their lands. Visitor and resource protection rangers would continue cooperation with their counterparts at other agencies.

ADDITIONAL DESIGNATION

If this alternative was selected for implementation, the National Park Service would recommend that the remaining segment of the river in Big Bend National Park be included in the national wild and scenic rivers system. That segment has already been studied and found to be eligible and suitable for inclusion in the system. The Mexican state of Chihuahua no longer opposes the designation of that stretch of river. Adding 48.6 miles would make the Rio Grande Wild and Scenic River 241 miles long. Access points for the newly designated segment would be the existing access points at Lajitas (Santa Elena Canyon put-in) and the Santa Elena Canyon takeout. Congressional action would be required to designate the proposed addition to the wild and scenic river system. This recommendation would go through the director of the National Park Service to the secretary of the interior and on to Congress. The ownership of the riverfront property along the 241-mile wild and scenic river that would result from designation of the additional segment is shown in table 4.

TABLE 4: OWNERSHIP OF SEGMENTS OF RIO GRANDE WILD AND SCENIC RIVER, AS PROPOSED IN ALTERNATIVE B

Owner	Miles ¹	% of Total
Federal Government (Big Bend National Park)	115.7	48
Private	98.6	41
State of Texas	26.7	11
Total	241	100
1. Length is approximate (taken from Geographic Information System data).		

If the additional segment was designated, the management emphasis would shift toward protecting the identified outstandingly remarkable values, and it might involve additional use restrictions to reduce the effects on those values.

The segments of the Rio Grande Wild and Scenic River would be classified as shown in table 5. The newly designated portion would be classified as *scenic*.

TABLE 5: PROPOSED CLASSIFICATIONS OF SEGMENTS OF RIO GRANDE WILD AND SCENIC RIVER, INCLUDING PROPOSED NEW SEGMENT — ALTERNATIVE B

Segment	Description	Classification	Length (miles) ¹
9 (recommended new designation)	Beginning at western boundary of Big Bend National Park to line between Mexican states of Chihuahua and Coahuila	Scenic	48.6
1	The Mexican state line between Chihuahua and Coahuila, to Talley	Scenic	13.5
2	Talley to Solis	Wild	9.7
3	Solis to entrance of Boquillas Canyon	Scenic	23.3
4	Entrance of Boquillas Canyon to exit from Boquillas Canyon (national park boundary)	Wild	20.5
5	Boquillas Canyon to Reagan Canyon	Scenic	35.2
6	Reagan Canyon to San Francisco Canyon	Wild	37.8
7	San Francisco Canyon to just above Dryden Crossing takeout	Scenic	16.3
8	Dryden Crossing to county line between Terrell and Val Verde counties, Texas	Recreational	36.1
Total Miles			241.0

1. Length is approximate (taken from Geographic Information System data).

BOUNDARY AND NONFEDERAL LANDS

For proper and effective management of the river, the National Park Service believes it is imperative to develop close working relationships with the state, local counties, and private landowners. The issue of wild and scenic river boundaries on private land has proven contentious as some landowners have disputed NPS authority or control on private lands. In this alternative, the National Park Service would work cooperatively with individual landowners to develop binding agreements that would identify the specific outstandingly remarkable values that exist on each property within the boundary and set a mutually agreed-upon boundary and that would protect the values and also protect landowners from unwanted federal acquisition and regulation. (See appendix C for a sample landowner agreement.)

The Wild and Scenic Rivers Act requires that the management boundary of a wild and scenic river encompass the outstandingly remarkable values for which the river was designated within limitations imposed by the act. Of the river's identified outstandingly remarkable values — fish and wildlife, geology, scenery, and recreation — scenery potentially requires the largest boundary. The Rio Grande Wild and Scenic River boundary would be line of sight, or 0.25 mile beyond the ordinary high water mark,

whichever is less. This applies to the segments classified *wild* and *scenic*. A 150-foot public use corridor would exist along the river's edge. On the segment classified *recreational* (Dryden Crossing to the county line between Terrell and Val Verde counties), the wild and scenic river boundary would 150 feet from the river's edge.

The official boundary would be the one illustrated on the Proposed Boundary map, p. 39. The area within the management boundary would not exceed an average of 160 acres per river mile on the United States side, as mandated by the designating legislation (see appendix A).

The landowner agreements also would provide for continued traditional uses and/or access to the river while protecting property rights. The location of access points and roads, campsites, side canyons, and other sites might be identified, and restrictions on use or other management actions could be specified. The landowner may also agree to stop activities that adversely affect river values.

Nonfederal lands are not directly affected by wild and scenic river designation. As has been mentioned previously, the National Park Service does not have the authority to enforce its rules or regulations on private land away from the river. Land uses and developments on private and state lands in the river area that existed before the wild and scenic river was designated may con-

tinue. Proposed land uses and developments would be evaluated for their compatibility with the purposes of the Wild and Scenic Rivers Act in conformance with provisions established in the landowner agreements. The National Park Service would offer technical assistance to landowners to find ways to alleviate or mitigate any potential adverse impacts on the river's outstandingly remarkable values.

The Texas Recreational Use Statute protects private landowners from trespass liability (see appendix D). The "Acknowledgement of Risk" form on the river permits offers additional protection to private landowners. Private land access information provided to river runners would encourage respect for private property.

The boundary for the river corridor in Black Gap Wildlife Management Area, which is managed by the Texas Parks and Wildlife Department, would follow the description for river segments classified as *scenic*. The National Park Service and the Texas Parks and Wildlife Department would manage this corridor cooperatively according to an agreement between the two agencies.

Recreationists regularly use the Mexican shore. Through permit stipulations, the National Park Service would require compliance with Mexican laws and encourage respect for the lands and people of Mexico

LAND ACQUISITION AND RIGHTS-OF-WAY

Section 6(b) of the Wild and Scenic Rivers Act prohibits the federal government from acquiring lands through condemnation if 50% or more of the entire acreage within the boundary and outside the ordinary high water mark is in public ownership. Under this alternative, 59% of the shoreline would be owned by the U.S. government and the state of Texas, as shown in table 4, page 36. As stated in this document and in the binding landowner agreements, no non-federal lands would be acquired for the management of the Rio Grande Wild and Scenic River except in the following circumstances:

- if a landowner approached the U.S. government with an offer to sell or donate land
- if a third party (such as the National Parks Conservation Association) offered land that party had purchased from a willing seller
- if the state of Texas offered to donate land along the river or riverbed

Any land being acquired would have to be completely or partially within the established boundary of the Rio Grande Wild and Scenic River. The ability of the National Park Service to purchase land or interest in land would be subject to congressional appropriation of funds for this purpose.

In addition to the acquisition of fee title, the National Park Service could purchase rights-of-way or easements on private lands from a willing seller only if such access would be advantageous for river management or public use. The federal government would not initiate condemnation proceedings to acquire land.

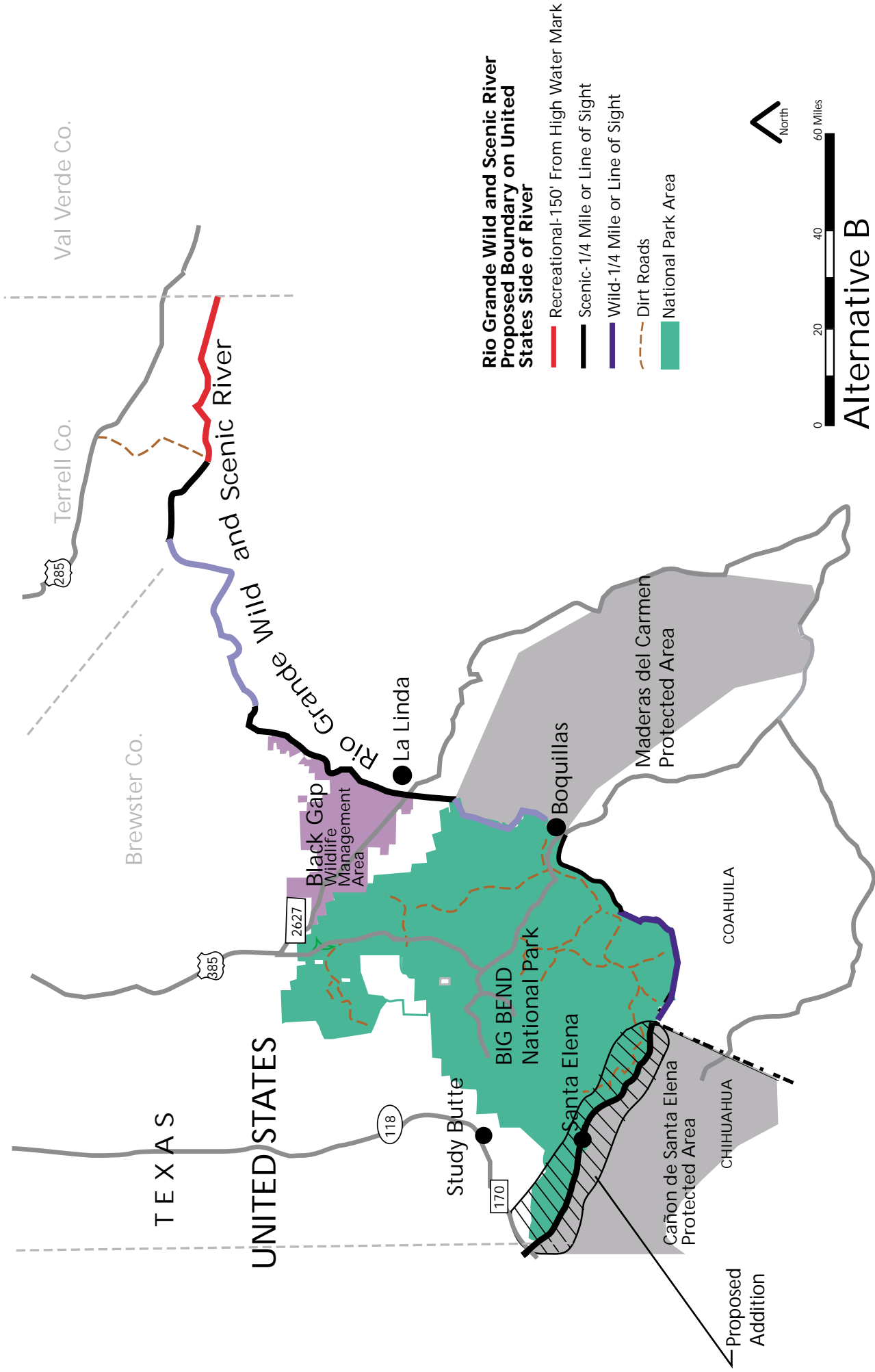
CULTURAL RESOURCES

Segments in Big Bend National Park

Under this alternative (or any alternative) the National Park Service would be required to continue to comply with existing laws and policies for protecting cultural resources, including cultural landscapes, historic structures, archeological resources, and ethnographic resources. The forthcoming general management plan for Big Bend also would specify actions for managing cultural and ethnographic resources.

Segments Adjacent to Nonfederal Land

Although the National Park Service has no authority to manage cultural resources on non-federal land, the agency would seek agreements



with landowners on both sides of the river to cooperatively perform resource studies and evaluations and to develop appropriate strategies for protecting resources. The NPS Southwest Cultural Resources Center might be asked to help with the inventories and possibly with a resource management plan for the river, or other agencies such as the Texas state historic preservation office or cultural resource agencies in Mexico might be asked to help the National Park Service.

Inventories and monitoring of cultural sites would be carried out on nonfederal land only with the landowner's permission or as specified in landowner agreements. Archeological and historic sites found on nonfederal land found to be eligible for the National Register of Historic Places would be recorded and made known to the landowner.

If cultural resources were being vandalized, the National Park Service might provide technical assistance to help landowners protect them. Landowner agreements and recreational leases might permit the public to visit some cultural sites on nonfederal land if such use would not cause undue degradation or infringe on private property rights.

NATURAL RESOURCES

Segments in Big Bend National Park

Under alternative B (or any alternative) the National Park Service would be required to continue to comply with existing laws and policies for managing natural resources, including vegetation, wildlife, and water. The forthcoming general management plan for Big Bend National Park also would specify actions for managing natural resources, as would a subsequent resource management plan.

The National Park Service would conduct regularly scheduled monitoring, assessment, and evaluation to determine if visitation was causing undue degradation of natural resources. If so, actions would be taken to reduce or eliminate the impacts. Regularly scheduled inventory and

monitoring of special status species (that is, threatened or endangered species or species of concern) by NPS personnel or others would determine information about the species such as population trends and general health. These schedules would be established by a resource management plan to be prepared by the park staff. If monitoring indicated undue impacts from visitor use, additional limits on visitation might be established. The National Park Service would cooperate with state and federal wildlife agencies to reintroduce or maintain sensitive fish and wildlife species.

Interpretation and education media would be used to encourage visitors to participate in protecting listed species. The National Park Service would continue to cooperate with the U.S. Fish and Wildlife Service and the state of Texas in managing special status species.

With regional and binational partners, the National Park Service would strongly advocate for scientifically determined suitable instream flow levels to support fish and wildlife populations, riparian communities, and recreational opportunities. The Park Service also would initiate cooperation with other federal agencies such as the Bureau of Reclamation, the International Boundary and Water Commission, and the Mexican government to maintain or enhance the quality and quantity of Rio Grande water.

Big Bend National Park would develop a plan to inventory and eradicate invasive nonnative species in the river corridor. The park would act in conjunction with any state or local invasive species programs. According to the Wild and Scenic Rivers Act, the jurisdiction or responsibility of the state to manage fish and wildlife is not affected by wild and scenic river designation.

The scenic resources in Big Bend National Park would be protected by measures prescribed in the park's general management plan. Nothing in this alternative would result in an increase in light pollution that would affect opportunities to view the night sky.

Segments Adjacent to Nonfederal Land

The management of flora and fauna on nonfederal lands is subject to the permission of the landowner. However, the National Park Service does not need landowner permission to work on fisheries or other work that would take place in the river.

Landowners' permission would be required for the National Park Service to inventory or monitor natural resources on private or state lands and the impacts on those resources. If monitoring indicated undue impacts from visitor use, additional limits might be called for. The National Park Service could recommend measures to mitigate potential impacts. Exotic invasive species in the river corridor would be inventoried and eradication programs implemented on private lands only with landowners' permission.

In this alternative, the National Park Service would try to develop a fishery management plan in conjunction with Texas Parks and Wildlife to ensure sustainable fish populations for ecosystem management and sport fishing opportunities.

Maderas del Carmen and Cañon de Santa Elena are two Mexican federally protected areas adjacent to the Rio Grande. Together with Big Bend National Park, these areas preserve more than 2 million acres of important wildlife habitat and migration corridors. The areas offer unique opportunities for the United States and Mexico to work together toward common resource preservation goals. The letter of intent between the U.S. Department of the Interior and the Secretariat of Environment, Natural Resources and Fisheries of the United Mexican States, for joint work in natural protected areas on the United States–Mexico border would be implemented to the fullest extent possible. Under this agreement, the two agencies would expand cooperative activities in the conservation of contiguous natural protected areas in the border zone and consider new opportunities for cooperation in the protection of natural protected areas along the border.

VISITOR EXPERIENCE AND UNDERSTANDING

All Segments

Historic and traditional uses of the river (as of 1978, the year of its designation as a wild and scenic river) such as sightseeing, floating, fishing, hiking on the shore, swimming, and wading would be allowed to continue under this alternative. Motorboats, nonmotorized boats, canoes, and kayaks would be allowed on the river. The established use by private and commercial boaters spending a number of days to float through the Lower Canyons would continue.

Unless otherwise mentioned in this document, the management guidelines in the *Recreational River Use Management Plan* (NPS 1997) would remain in effect for the river segments in Big Bend National Park. A river use plan for the entire wild and scenic river would be developed to implement the actions prescribed in this alternative.

Permits for private boaters on the river still would be required under this alternative. Commercial boaters still would have to obtain an appropriate business permit/contract and pay the fees. These requirements would let the National Park Service monitor recreational use, deliver important safety information, and inform users of private property issues and special regulations in the Lower Canyons. To protect landowners, the permit would include an "Acknowledgement of Risk" form and a waiver of liability. A permit would not be required for landowners or their guests boating on the river adjacent to their own property.

Fishing would be permitted according to existing policy. No state fishing license is required within Big Bend National Park. Hunting on state and private lands would be allowed according to state regulations, but hunting is not allowed in the park. No hunting would be permitted from the river surface by boat or other means.

To protect natural and aquatic resources, the use of motorized wheeled vehicles would be prohib-

ited on all segments. Exceptions might be made for emergency use.

On designated wild and scenic rivers, the National Park Service is required by *Management Policies 2001* and the Wild and Scenic Rivers Act to prevent unacceptable impacts on resource-related and recreation-related outstandingly remarkable values. In establishing recreational use limits, the National Park Service looked at the historic variety of experiences available, recent use, and the physical characteristics of each river segment. The goal of these limits is to continue the variety of historic or traditional visitor experiences and to protect natural and cultural resources in the future.

The limits on recreational use for segments of the Rio Grande Wild and Scenic River are summarized in table 6. User-days are the number of users multiplied by the number of days spent on the river (two users on a six-day trip equal 12 user days). Limits would be implemented through a permit allocation process.

Segments in Big Bend National Park

The following restrictions on motorized watercraft would be enforced in this alternative. Personal hovercraft are prohibited on all segments by federal regulation (36 CFR 2.17 (e)).

Boats using motors up to 60 horsepower are allowed on river segments except the following two areas:

- Santa Elena Canyon, from the western park boundary to the Santa Elena Canyon take-out.
- Mariscal Canyon, from Talley to Solis (Wild and scenic River segment classified as *wild*), is closed to all motorized watercraft except during the month of October. Motors up to 60 horsepower may be used in October only.

TABLE 6: LIMITS ON RECREATIONAL USE BY SEGMENT — ALTERNATIVE B

Segment	Private Party Limits (Maximums)		Other Limits
	Persons per Launch	Launches per Day	
Western park boundary to Santa Elena Canyon takeout, Santa Elena takeout to Cottonwood Campground	30	11	6 commercial companies may each launch a combination of day or multi-day trips per day, and 1 special use group launch per day
Cottonwood Campground to Reed Camp, Reed Camp to Talley	30	11	3 commercial companies may each launch a combination of -day trips per day, and 1 special use group launch per day
Talley to Solis	20	10	1 commercial company may launch 1 day trip or multi-day trip per day; 1 other commercial company may launch a 1-day trip; 3 special use groups may launch per week
Solis to La Clocha, La Clocha to Boquillas	30	11	3 commercial companies may each launch a combination of trips per day, and 1 special use group launch per day
Boquillas Canyon entrance to eastern park boundary	20	10	3 commercial companies may each launch a combination of -day trips per day, (if 3 launches occur, at least one must be after noon) 3 special use groups may launch per week
<u>Lower Canyons</u>			
Park boundary to end of wild and scenic river segment	20	10, 2 per launch site (maximum of 1,000 persons per year; 7,000 user-days per year.)	3 commercial companies may each launch no more than 1 trip per day within maximum 1 special use group launch per day

To offer a wilderness experience, motorized watercraft are prohibited in the wild zone that includes Boquillas Canyon and on other segments of the Rio Grande Wild and Scenic river that are classified as *wild*.

Segments Adjacent to Nonfederal Land

As is indicated in table 6, the total recreation use levels in the Lower Canyons segments would be held at a maximum of 2,000 persons, or 12,000 user-days per year. Because social conflicts have not been a problem and resource impacts have not occurred either recently or historically, the limits have been set at slightly higher levels than recent use in the Lower Canyons. Experience and professional judgment indicate that these limits would not cause undue impacts on the resources and would maintain a high-quality visitor experience. Personal hovercraft are prohibited on all segments by federal regulation (36 CFR 2.17 (e)).

The recreational use of the wild and scenic river outside the park would be monitored to determine if any unacceptable adverse impacts on outstandingly remarkable values were occurring. If so, additional management actions such as party size limits, fewer permits, or restrictions on motorized craft might be imposed to reduce impacts. Monitoring would include a visitor study to determine the level of experience versus expectations. The reason for these restrictions would be to perpetuate the previous variety of visitor experiences and to prevent conflicts from occurring in the future.

In general, river users would be allowed to pull their boats out and camp on the United States shore as far as the equivalent of 25 feet vertical or 75 feet up the bank from the water's edge. Exceptions to this would be posted on the ground or indicated on maps available to boaters. The use of watercraft by landowners who launch and take out on their own property (and their guests) would not be affected by this plan.

A recreational river use plan for the entire Rio Grande Wild and Scenic River would be pre-

pared to specify monitoring and implementation actions.

INTERPRETATION AND EDUCATION

All Segments

The current interpretation and education programs offered at Big Bend would be expanded to include the entire Rio Grande Wild and Scenic River. The emphasis in the programs would be on instilling an understanding of the natural and cultural history of the Rio Grande, West Texas, and the Chihuahuan Desert for boaters and other river users. Visitors could gain understanding and a sense of appreciation or respect from views of geologic and cultural landscapes and direct sensory contact with resources. In addition, visitor understanding would be enhanced through a variety of interpretive media conveyed through existing contact stations. Improved visitor understanding would lead to more appreciation of the inherent values of the river and could promote a good land stewardship ethic in river visitors.

Interpretive Themes

Interpretive themes are ideas or stories that are central to the purpose, identity, and desired visitor experience of the unit of the national park system — in this case, the Rio Grande Wild and Scenic River. Interpretive themes form a framework for interpretation and educational programs. The following themes have been adapted from the primary interpretive themes for Big Bend National Park that are applicable to the river.

- The Rio Grande's ecosystem supports an extraordinary richness of plants and animals.
 - ✓ The Rio Grande and adjacent shores provide valuable habitat for communities of plant and animal species, including several endangered and threatened species. The river's protected status helps in the preservation, study, and recovery of many of these species.

- ✓ Surface water is highly important to a desert ecosystem. Nowhere does the Chihuahuan Desert exhibit more biodiversity than along a waterway such as the Rio Grande.
- One hundred million years of geologic history is exposed along the river; this allows visitors, students, and scientists to study and learn about the geologic processes that formed the current landscape.
- An important part of the NPS mission is to preserve or restore natural resources, including natural soundscapes. Intrusive sounds are also a matter of concern to visitors. The Rio Grande is relatively free of intrusive or unnatural sounds, and management strives to preserve this value.
- Exotic (nonnative) plants and animals are extremely disruptive to river-related ecosystems. Natural resource managers work with riverside landowners and river users to detect, monitor, and remove exotic species and to prevent the spread of exotic species.
- Water constitutes the most important resource in the Chihuahuan Desert.
- Maderas del Carmen and Cañon de Santa Elena are two Mexican federally protected areas adjacent to the Rio Grande. Together with Big Bend National Park, these areas preserve over 2 million acres of important wildlife habitat and migration corridors. The areas offer unique opportunities for the United States and Mexico to work together toward common resource preservation goals.

PARTNERSHIPS AND INTERNATIONAL COOPERATION

The Rio Grande Partnership Team would remain in effect to give the National Park Service information regarding river management, with the understanding that individual team members will come and go. The NPS river management staff would continue to establish and foster cooperative relationships with owners of adjacent property, surrounding counties, tribal entities, and private and public groups that affect or are

affected by the river. Additional partnerships would be sought for resource protection, research, education and visitor enjoyment.

The National Park Service would work closely with local, state, federal, and tribal governments whose programs affect or are affected by activities on the river. Cooperative regional planning opportunities would be encouraged whenever possible to integrate the river into issues of regional concern.

Common resource management issues would be identified and a cooperative relationship with various government entities in Mexico, especially managers of the adjacent protected areas, would be maintained. A memorandum of agreement between the U.S. Department of the Interior and Mexico's National Commission for Natural Protected Areas, signed in 2000, serves as an "umbrella" for all natural resource activities carried out jointly between the National Park Service and Mexico.

IMPLEMENTATION

The National Park Service would implement the new management actions proposed under this alternative over the next 15 to 20 years as funding became available. Partnerships with other agencies and organizations would be established to implement several actions of this alternative. If this alternative was selected, the management emphasis of the wild and scenic river would shift, and a reallocation of staff might be required.

Given adequate funding, the highest priority would be given to implement actions that would serve the following functions:

- protecting important resources
- managing visitor use
- providing more interpretation and visitor services

After the final version of this plan is completed and approved, park managers may need to develop several lower-level implementation plans.

These more detailed plans would describe specific actions that park managers would take to achieve the desired conditions and management objectives. The National Park Service would seek public input for these plans and would prepare environmental documentation as needed to comply with existing environmental protection laws. Such implementation plans might include a revised river use management plan and a resource management plan.

MITIGATING MEASURES

The following mitigating measures, which would be applied as part of the preferred alternative, would avert or minimize the potential impacts on natural and cultural resources from visitor use and river management actions.

Natural Resources

The NPS staff would use inventories, regular monitoring, research, the best scientific information, and proven ecosystem management methods to maintain or enhance natural resource conditions, including water quality. The National Park Service would work with other land managing agencies and organizations to manage the entire set of resources and ecosystems that encompass and affect the Rio Grande.

Best management practices would be employed to reduce soil erosion resulting from any action caused by this alternative. On nonfederal lands, these actions would be carried out only with the landowner's permission.

The treatment of exotic (nonnative) species in the river corridor would be undertaken according to NPS *Management Policies 2001* and other applicable state and federal laws and guidance.

Big Bend National Park's resource management plan would be revised to include the Rio Grande Wild and Scenic River.

Cultural Resources

Cultural resource surveys would be conducted according to NPS management policies and existing guidelines. The staff of the park and the wild and scenic river would consult with the Texas state historic preservation officer about management strategies for historic structures and prehistoric sites to minimize adverse impacts resulting from visitor use. On nonfederal lands, these actions would be carried out only with the landowner's permission.

Visitors and Nonfederal Landowners

The park staff would collect and use visitation data, communication with landowners, and other information to identify user conflicts and landowner concerns related to public use. Actions would then be implemented to reduce or eliminate conflicts according to a revised river use management plan.

New Structures

Although the preferred alternative does not call for new structures, it does not eliminate the possibility for building NPS-initiated structures (such as a visitor information kiosk or an emergency equipment cache) along river segments classified as *scenic* or *recreational* where a clear need is identified by park staff or partners. Such structures would be small, inconspicuous, and temporary (that is, with no permanent foundation), and previously disturbed sites would be preferred.

THE ENVIRONMENTALLY PREFERABLE ALTERNATIVE

Environmentally preferable is defined as “the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act, §101,” which establishes the following environmental goals.

1. to fulfill the responsibilities of each generation as trustee of the environment for succeeding generations
2. to ensure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings
3. to attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences
4. to preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice
5. to achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities
6. to enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources

Alternative A, the no-action alternative, which represents the current management direction for Rio Grande Wild and Scenic River, would continue a lack of long-term planning; therefore, educational opportunities under that alternative would be limited. The existing use of the river is based on planning initiated when the river was designated, but no plan has ever been implemented to guide the long-term management of the Rio Grande Wild and Scenic River. Visitor

and resource protection patrols are sporadic at present. The protection of cultural and natural resources would be less enhanced under the no-action alternative than under the preferred alternative (B). The no-action alternative would not fully realize goals 1, 3, 4, and 5.

Alternative B, the preferred alternative, would lead to increased management attention to and emphasis on preserving wild and scenic river objectives, including recreational values. It would protect and enhance natural and cultural resources (goals 1, 4, and 5). It also would create opportunities for high-quality, resource dependent visitor experiences through traditional recreational uses (goals 2 and 3).

After careful review of the potential resource and visitor impacts, and after considering the proposed mitigation for the potential impacts on natural and cultural resources, the planning team has concluded that the preferred alternative (alternative B) also is the environmentally preferable alternative. Alternative B would enhance the ability of the National Park Service to protect natural and cultural resources while allowing visitors to enjoy a wide range of traditional river-related recreational activities. Alternative B would (a) provide a high level of protection for natural and cultural resources while attaining the widest range of neutral and beneficial uses of the environment without degradation; (b) maintain an environment that supports diversity and variety of individual choice; and (c) integrate resource protection with opportunities for an appropriate range of visitor uses. Thus, this alternative would surpass the other alternative by best realizing the fullest range of NEPA goals as stated in §101 of the National Environmental Policy Act. alternative by best realizing the fullest range of national environmental policy goals as stated in § 101 of the National Environmental Policy Act.

COST ESTIMATES

The cost figures shown in table 7 are intended to give only a rough idea of the *relative* cost of alternative B. These estimates are general and should not be used for budgeting purposes. The actual costs to the National Park Service will vary, depending on if and when the actions are implemented and on contributions by partners and volunteers.

Implementing alternative A, the no-action alternative would not result in any additional operating or development costs above the current level other than annual cost-of-living

salary increases and price increases for goods and services due to general inflation.

Alternative B, the preferred alternative, would necessitate an increase in staff to improve river management and interpretation. Resource monitoring would be increased, and that could result in additional costs for materials or contracts. In alternative B, the National Park Service might help private landowners to manage river access points or stabilize historic sites in the river corridor that people might visit. No capital development costs would be incurred.

TABLE 7: COST ESTIMATES FOR ALTERNATIVE B (2002 DOLLARS)

Element	Operating Costs (per year)	Potential for Cost Sharing
Staff (3 permanent employees)	\$165,000 ¹	—
Increased interpretation (additional brochures or interpretive panels)	first year, \$15,000–\$45,000 thereafter, \$5,000	—
Resource monitoring (supplies, materials, and/or contracts)	\$40,000–\$80,000	Other agencies, colleges, or environmental organizations could conduct monitoring or provide assistance
Assistance to landowners in managing resources or visitor use	\$0–\$50,000 (would depend on number and scope of projects)	Cost-sharing agreements with landowners
1. Staff costs include salary, benefits, training, equipment, and supplies.		

COMPARISON OF ALTERNATIVES AND CONSEQUENCES

TABLE 8: COMPARISON OF ALTERNATIVES

Topic	Alternative A: Existing Management Direction (No Action)	Alternative B: Enhance Resource Protection While Continuing High-Quality Visitor Experiences (Preferred Alternative)
Meeting Purpose and Need of This Plan	Does not meet purpose and need as described in this document.	Fully meets purpose and need as described in this document.
Scenic Resources	Development on nonfederal lands would proceed without NPS advice about mitigating impacts on scenery.	Development on nonfederal lands would be subject to agreements (where in effect) requiring consultation with NPS to mitigate potential adverse effects on scenery.
Managing Resources on Federal Land	Natural and cultural resources managed according to Big Bend NP <i>General Management Plan</i> and subsequent resource management plans.	Natural and cultural resources managed according to Big Bend NP <i>General Management Plan</i> and subsequent resource management plans.
Managing Resources on Nonfederal Land	No NPS involvement in resource management activities on nonfederal lands.	NPS might do inventories and monitoring of natural and cultural resources on nonfederal land with landowners' permission; if requested, NPS might help protect resources.
Managing River Use on Federal Land	Current management would continue, guided by <i>Recreational River Use Management Plan (NPS 1997)</i> .	Management would be guided by this <i>General Management Plan</i> and a revised <i>Recreational River Use Management Plan</i> ; limits on visitors' use of river would be imposed.
Managing River Use Adjacent to Nonfederal Land	Current management actions and use restrictions would continue.	Management would be guided by this <i>General Management Plan</i> , a revised <i>Recreational River Use Management Plan</i> , and landowner agreements; limits on visitors' use of Lower Canyons would be imposed and prescribed in landowner agreements; boat use by landowners who launch and take out on their own property (and their guests) not affected.

TABLE 9: COMPARISON OF ENVIRONMENTAL CONSEQUENCES

Topic	Alternative A: Existing Management Direction (No Action)	Alternative B: Enhance Resource Protection While Continuing High-Quality Visitor Experiences (Preferred Alternative)
Scenic and Aesthetic Values	Could result in continuing long-term minor adverse impacts on scenic and aesthetic values on lands outside Big Bend NP.	Would result in long-term beneficial effects on scenic and aesthetic values of the wild and scenic river.
Fish and Wildlife	No effect on fish and wildlife.	Minor long-term beneficial effects on fish and wildlife.
Threatened and Endangered Species	No effect on special status species.	No effect on Big Bend gambusia, black-capped vireo, bunched cory cactus or Chisos Mountain hedgehog cactus; possible long-term minor beneficial effects from increased monitoring and protective actions.
Water Quality and Quantity	No effect on quality or quantity of water in the Rio Grande.	Long-term beneficial effects on Rio Grande water quality and quantity from cooperative efforts to maintain a minimum flow and reduce contaminants.
Vegetation	No effect on vegetation along river corridor.	Minor long-term beneficial effect on native vegetation in the river corridor.
Archeological Resources	No effect on archeological resources listed on National Register of Historic Places or known to be eligible for listing.	No adverse effects on archeological resources; possible long-term beneficial effects from additional protective measures.
Historic Structures	No adverse effects on historic structures listed on National Register of Historic Places.	No adverse effects on historic structures; possible long-term beneficial effects from additional protective measures.
Visitor Experience and Understanding (Recreation)	Possible long-term moderate adverse effects on visitor experience and understanding if private lands were closed to public use.	Long-term minor beneficial effect on visitor experience and understanding.
Boundary and Nonfederal Lands	Possible long-term minor adverse effects on nonfederal landowners.	Long-term beneficial effects on nonfederal owners of land along river from establishment of more meaningful boundaries.
Socioeconomic Conditions	No beneficial or adverse effects on socioeconomic conditions.	Long-term minor beneficial effects on local and regional economy.
Partnerships and International Cooperation	Long-term moderate adverse effect on cooperative river management efforts.	Long-term moderate beneficial effect on interagency and international cooperative river management efforts; minor beneficial effects on transboundary issues.

Affected Environment



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INTRODUCTION AND DESCRIPTION

This chapter contains background information about the resources that could be affected by the actions of the alternatives.

Near its upstream end, the Rio Grande Wild and Scenic River flows through the steep-walled Mariscal and Boquillas Canyons. Downstream from Boquillas Canyon, the river travels through a relatively broad, open floodplain, or *vega*. Near Reagan Canyon, the floodplain narrows abruptly, and the river flows in a continuous deeply cut canyon for almost 40 miles. In the Lower Canyons part of this segment, the river and its tributaries lie 500 to 1,500 feet below the surrounding plateaus. The original *Rio Grande Wild and Scenic River Study* identified the outstandingly remarkable values as scenic, recreational, geological, biological, and cultural (Bur. of Outdoor Recr. 1975).

ACCESS

Access to the river is available at various locations in and outside of Big Bend National Park. Primitive access points (access to the riverbank but not the water) are available at Talley, Solis, and Cottonwood Campground. Undeveloped access points exist at other locations where the river is accessible to carry-in boating, such as Jewels Camp, Woodsons, Black Dike, Hot Springs, and La Clocha. There are developed access points (access to water's edge) at the Santa Elena takeout and Rio Grande Village. Access points outside the park are on state or private land: Stillwell Crossing, Heath Canyon, Black Gap Wildlife Management Area, Dryden Crossing, and Foster's Weir. Private access points are subject to closure and restriction by the landowners.

OWNERSHIP

The ownership of riverfront property along the designated wild and scenic river is shown in table 1, page **Error! Bookmark not defined.** Texas state land is in the Black Gap Wildlife Management Area, northwest of the park. Along the river are 17 parcels of private land, all in the Lower Canyons section.

EXISTING DEVELOPMENT

In the Lower Canyons, some private landowners have constructed facilities such as primitive campsites and buildings. Because the wild and scenic designation does not allow the river manager to regulate the use of private land, the potential exists for additional development along the river shores. Two developed campgrounds, 11 primitive campsites, a concession store, and other amenities are available in or near the river corridor in Big Bend National Park. In Black Gap Wildlife Management Area are 25 small fishing and picnicking shelters near the river. Commercial river running outfitters do not provide facilities but do offer shuttle services to and from put-in and takeout sites.

The southern half of the Rio Grande and adjacent lands belong to Mexico. Small communities on the Mexican side are San Vicente, Boquillas del Carmen, and La Linda. Although the mineral processing plant at La Linda has been closed for 10 years, there has been renewed interest in development in or near La Linda in conjunction with preliminary plans to encourage ecotourism activities in the area.

LAND USES

Recreation, livestock grazing, and residential development are some of the current land uses along the river. Ranching had been the predominant land use for more than 100 years, and it continues on both sides of the river outside of Big Bend National Park. On the U.S. side, livestock graze on private land. Livestock often cross the river during periods of low flow.

Land use patterns have been changing in the past decade, and now some uses take place on small parcels of land that may or may not be developed, with utilities and a residence or other structures. Large blocks of private land have been subdivided and sold as ranchettes of a few acres to several hundred acres.

RESOURCES THAT COULD BE AFFECTED

NATURAL RESOURCES

Scenic Value

The area encompassing the designated Rio Grande Wild and Scenic River contains views of the river and surrounding canyons with outstanding visual quality. Rugged, steep-walled canyons, scenic rapids, and unspoiled views contribute to the scenic allure. These attributes, due largely to the primitive and undeveloped nature of the river and its surroundings, are important values for river visitors.

Fish and Wildlife

The area represents an outstanding example of Chihuahuan Desert wildlife in Texas. This isolated area represents a rapidly dwindling, irreplaceable natural resource. The riparian corridor, containing more vegetative growth and a reliable water supply, attracts many wildlife species.

Forty-six known species of fish inhabit the Big Bend area; 34 of these are native. Shiners and daces are the most abundant fish in the Rio Grande. Larger fish found here are the longnose gar, channel catfish, blue catfish, and European carp. Six native fish species have been extirpated in recent decades because of the effects of dams, habitat modification, and competition from introduced species.

Numerous wildlife species are residents of the river corridor, and many others, especially birds, use the Rio Grande as a travel corridor. Mammals include skunks, rodents, squirrels, rabbits, raccoons, and ringtails. Mountain lions (locally called panthers) occupy the area, and black bears and desert bighorn sheep occasionally can be seen.

Birds are the most frequently seen animals along the river. Common resident species seen or heard along the river include yellow-breasted chat, black phoebe, white-wing dove, canyon

wren, and roadrunner. Ravens, turkey vultures, and various raptors commonly soar overhead. Peregrine falcons (*Falco peregrinus*) use high cliff faces for nesting in Santa Elena, Mariscal, and Boquillas canyons. Reptiles include lizards, snakes, and both terrestrial and aquatic turtles. Several amphibian species also are present.

Native freshwater mussels have virtually disappeared from this area. Some historic species no longer can be found, and the more persistent Texas hornshell and Salina Mucket have not been found alive in recent years. Other aquatic species may be in danger of extirpation. Reductions in water quality and quantity adversely affect these and other aquatic species.

Many exotic or nonnative species are found in the Rio Grande. Twelve nonnative fish species compete with the remaining native species. Nutria, a large nonnative rodent, is now common, and the exotic Asian clam is abundant. At present there is insufficient information about the distribution and spread of exotic species.

Special Status Species

The following federally listed species may be found in the river corridor.

Fishes. The endangered *Big Bend gambusia* (*Gambusia gaigeii*) is known only from spring habitats near Boquillas Crossing and Rio Grande Village in Big Bend National Park, within the management area of the river. The population of this fish species at Boquillas Spring died when the spring stopped flowing in 1954. The population near Rio Grande Village drastically declined between 1954 and 1956, after the spring flow was altered to provide a fishing pool. By 1960, the Big Bend gambusia no longer could be found at the Rio Grande Village location. The loss of this population probably was due to competition with the western mosquitofish and predation by the introduced green sunfish. All the present populations of the Big Bend gambusia are descendants of two males and one female taken from the declining Rio Grande Village

population in 1956. The only known wild population exists in a protected pond in Big Bend National Park (Texas Parks and Wildlife Department web site). A recovery plan is in effect for this species that calls for its reintroduction (USFWS 1984).

Other fish species of concern include the following: Chihuahua shiners are known in the United States only in the park, where they inhabit the lower reaches of Tornillo and Terlingua Creeks. The Mexican stoneroller fish, the blue sucker, and the Conchos pupfish also are found in the area.

Black-Capped Vireos. Endangered *black-capped vireos* (*Vireo atricapillus*) nest in Texas during April through July and spend the winter on the western coast of Mexico. Their habitat is primarily rangelands with scattered clumps of shrubs separated by open grassland. They nest in shrubs such as shinnery oak or sumac. They may occasionally use the river corridor. This species' listing as endangered is due to the dwindling population numbers from nesting habitat loss and cowbird parasitism.

Cactus Species. The threatened *bunched cory cactus* (*Coryphantha ramillosa*) is found on slopes and ledges of sparsely vegetated limestone rock outcrops (most commonly of the Boquillas or Santa Elena Formations) in the lechuguilla shrublands in Big Bend National Park and on large private ranches. This species is known from about 25 sites in southern Brewster County, many in Big Bend National Park. It also can be found in northern Coahuila, Mexico.

The *Chisos Mountains hedgehog cactus* (*Echinocereus chisoensis* var. *chisoensis*), also a threatened species, is known to occur in the river corridor. These cacti are found in low elevation desert grasslands or sparsely vegetated shrublands on gravelly flats and terraces in the Chihuahuan Desert. This species is known from about a dozen sites, all in Big Bend National Park. No federally designated critical habitat for this species exists in Terrell or Brewster County.

Water Quantity and Quality

The Rio Grande, one of the longest rivers in the United States, is no longer a naturally flowing river along its entire length. Extensive diversion networks and dams control flows on the river to provide water for a variety of human needs. The condition of the Rio Grande was discussed in an Associated Press item in *The Daily Grist* of June 28, 2001, as follows:

Nine years of drought, a proliferation of choking river weeds and the drawing off of water by farms and municipalities have taken their toll on the river, which serves as the boundary between Mexico and the United States. Once a navigable waterway that swelled under bridges and made fertile an otherwise dry coastal plain, the river becomes a mere trickle before it gets to the Gulf of Mexico, disappearing about 300 feet short of its destination in a big expanse of sand.

At the time of the original *Draft General Management Plan / Development Concept Plan* (NPS 1981), the average annual streamflow in the upper reaches of the Rio Grande Wild and Scenic River was 925 cubic feet per second (cfs). The current annual flows are considerably less. From March 2000 through March 2001, the average flow was 571 cfs as recorded near Castolon, according to the International Boundary and Water Commission's web page.

The proportion of the annual flow from the Rio Conchos in Mexico has declined from approximately 80% to 57% since 1993. Population growth and increasing industrial and agricultural uses have contributed to a growing demand for Rio Conchos water in Mexico. The high flows and periodic floods necessary to maintain the river channels have been reduced by 75% in the Rio Grande below El Paso and by 50% on the Rio Conchos over the years by added dams and more water use.

Reduced flows in the Rio Grande below Fort Quitman have resulted in a long stretch of river with no defined channel, and the river in that area has become a continuous tamarisk thicket. The amount of water that reaches Big Bend Na-

tional Park and the Rio Grande Wild and Scenic River has been reduced by more than half the historic flows levels.

Spring inflows and unregulated tributaries increase the average annual streamflow in the lower reaches of the wild and scenic river. Peak flows and flooding most often occur between May and October as the result of intense rainstorms in the watershed.

Other factors that affect the water quality of the Rio Grande, its tributaries, and Amistad Reservoir are untreated sewage from Presidio/Ojinaga and border villages, livestock grazing in riparian areas, limited agricultural runoff, mining activities, and atmospheric deposition.

The available database reveals the presence of toxic contaminants and elevated densities of fecal-coliform bacteria in the river. This information represents a compilation of water quality data for stream sites sampled by the Texas Natural Resources Conservation Commission, the U.S. portion of the International Boundary and Water Commission, and the U.S. Geological Survey. The Texas Natural Resources Conservation Commission periodically assesses the available data and has identified several areas of concern, including the presence of the following:

arsenic	hexachlorobenzene
cadmium	Lead
chromium	Mercury
copper	Nitrogen
dichlorodiphenyl dichlorethane (DDD)	Phosphorus
dichlorodiphenyl ethylene (DDE)	polychlorinated biphenyls (PCBs)
dichlorodiphenyl trichlorethane (DDT)	Selenium
dieldrin	Silver
endrin	Zinc

At present, sulfates and nitrates make up the largest contributors of contaminants in the river.

The National Park Service has little control over the quality or quantity of the water in the Rio Grande because most of the water comes from tributaries on the Mexican side, and all the tribu-

taries on the U.S. side are in private or state ownership. The character and values that the wild and scenic river was originally established to protect cannot be maintained without adequate water flows. Therefore, it is vital that the quantity of water be increased, or in the near future some sections of the Rio Grande Wild and Scenic River may run dry during certain times of the year.

The treaty of 1944 between the United States and Mexico established that at least one-third of the combined annual flow volume from the six Mexican rivers that feed the Rio Grande belongs to the United States. This treaty also states that the flows must total at least 350,000 acre-feet annually, based on a five-year moving mean average. The treaty does not establish release schedules for the tributaries, so flows passing through the park can vary considerably over time. The International Boundary and Water Commission enforces this treaty and manages the water in the Rio Grande from Fort Quitman to the Gulf of Mexico.

Vegetation

The Chihuahuan Desert, through which the Rio Grande Wild and Scenic River flows, exhibits a great diversity of vegetation types, which have been categorized according to topography. The vegetation adjacent to the river is adapted to flooding and wet soils. Willows, canes, reeds, seepwillows, acacias, and grasses are the major components of this association. Upslope, the vegetation becomes more desertlike, with lechugilla, blackbrush, catclaw acacia, candelilla, saltbush, mesquite, creosote bush, chinograma, and a variety of cacti predominating. Cracks in the cliff walls harbor a distinctive plant community of candelilla, rock nettle, and poison ivy.

The riparian zone varies from narrow intracanyon banks to floodplains more than 0.5 mile wide. Early reports indicated that lance-leaf cottonwoods and willows were common, but by the early 1900s most of the trees had been harvested for use in mining operations, and their seedlings rarely survived grazing.

Tamarisk, giant river cane, Bermuda grass, and other invasive plant species have become established along the Rio Grande. In some places these exotic species have forced out native vegetation and form an impassable thicket.

CULTURAL RESOURCES

The canyons and valleys of the Rio Grande have been a homeland to people for many centuries. The area contains a number of prehistoric and historic cultural resources that supply limited views into the lifestyle of various cultures over the last 10,500 years. Many sites along the wild and scenic river are undisturbed, enhancing their scientific value. Reconnaissance surveys have located a significant number of prehistoric sites on both sides of the river. These sites, which represent occupation and exploration activities by the prehistoric inhabitants, are found in caves, rock shelters, terraces, talus slopes, and canyon rims.

Throughout the prehistoric period, people found shelter and maintained open campsites throughout what is now Big Bend National Park. Archaeological records reveal an Archaic-period desert culture whose inhabitants developed a nomadic hunting and gathering lifestyle that remained virtually unchanged for several thousand years. American Indian cultures represented are the Chisos, Mescalero Apache, Kickapoo, and Comanche. Sites containing ceramic artifacts suggest that some later indigenous peoples had a semisedentary lifestyle and practiced limited agriculture along the river.

The historic period began in 1535 with the explorations of Alvar Nuñez Cabeza de Vaca in the Texas Trans-Pecos region. During the late 1700s, Spanish presidios were established along the Rio Grande at San Vicente, Coahuila, and along the San Carlos River at San Carlos, Chihuahua.

Control of the area was passed to the United States after the Mexican-American War (1846–1848). A series of army posts was established along the Rio Grande in an attempt to stop Comanche and Apache raids. The first accurate

maps of the Rio Grande canyon areas were completed by Army topographic engineers and the United States–Mexico Boundary Commission in the 1850s. Around that time, a wagon road was established to link San Antonio and El Paso. The road tied the region into the trade network that stretched from California to the Gulf of Mexico.

Grazing history along the Rio Grande dates back to the early Spanish missions established between 1670 and 1690. These missions had become major centers of livestock concentration by 1700.

Hispanic settlements existed near the Rio Grande in 1805. Mexicans farmed and ranched the area throughout the 1800s. Beginning in the 1880s, Anglo-Americans established ranches throughout the area and began farming in the early 20th century. Some farmers and ranchers left the area for a short hiatus during the Mexican Revolution. Cotton and food crops were grown around Castolon and what is now Rio Grande Village even after the Big Bend National Park was established in 1944.

Quicksilver (mercury) was discovered in the area in the late 19th century, and later finds of silver and fluorite attracted hundreds of miners and prospectors. A unique facet of the continuing Rio Grande history is the use of the candelilla plant to produce high-quality wax. This wax has been used in the manufacture of candles, waxes, gum, and phonograph records.

Sites of historical interest in the Lower Canyons are an abandoned candelilla operation, the Asa Jones Waterworks, Dryden Crossing, and Burro Bluff, the site of an old trail built by cattlemen for access to the Texas side of the river.

A review of the National Register of Historic Places reveals that four sites that are listed on the register are in the river corridor in Big Bend National Park: Sublett Farm, Daniels Farm, the Castolon Historic District, and the Hot Springs District.

The Texas Historical Commission conducted a reconnaissance survey of the river corridor from

La Linda to Dryden Crossing in the 1970s (Malouf and Tunnel 1977). They recorded 83 prehistoric sites and 5 historic sites on that survey. Some of those are on the Mexican side of the river. The sites represented human occupation and use of the river area throughout the last 12,000 years. The potential for evidence of Paleo-Indian occupation exists in some of the more protected cave and rock shelter sites. Because they are on nonfederal land, no determinations of eligibility for the National Register of Historic Places have been made for prehistoric or historic sites in the Lower Canyons.

VISITOR EXPERIENCE AND UNDERSTANDING

Recreation

Spectacular river canyons, occasional rapids, the primitive character of the Rio Grande, and its international flavor form a stimulating environment for high-quality recreational experiences. In Big Bend National Park, the river can be enjoyed from canyon rims, along the shore, or from a boat. Downstream from the park, the river can be accessed only by boat or from a few privately-owned access points.

Recreational activities one can enjoy on the river are floating, motorboating, camping, fishing, hunting, photography, swimming or wading, and relaxing on the shore. Swimming in the river is not encouraged because strong currents and dropoffs can be dangerous. A warning is printed in the park brochure.

There are 13 camping areas along the river in the park — 2 developed campgrounds (Cottonwood and Rio Grande Village) and 11 primitive campsites. The primitive campsites are in the Lower Canyons where there is enough of a break in the riverside vegetation to get through.

Expectations of a visit and experiencing solitude are primary motivational factors for people who participate in a river trip, according to the *Recreational River Use Management Plan* (NPS 1997). Typically, traditional uses are allowed to continue on a wild and scenic river after it has

been designated. People use motorized and nonmotorized boats on the Rio Grande both inside and outside of Big Bend National park. However, the use of motorboats is an issue that was mentioned in several public comments. Conflicts between motorized and nonmotorized recreationists can occur in some stretches.

The following restrictions are from the 1997 *Recreation River Use Management Plan* (which does not cover the Lower Canyons section of the river):

- Mariscal Canyon (classified *wild*) is closed to all motorized watercraft except during October. Motors up to 60 horsepower may be used in October only.
- To provide a wilderness experience, motorized watercraft are prohibited in the wild zone that includes Boquillas Canyon.

A permit is required for boating on the wild and scenic river. Statistics show that a small percentage of permittees use motorized watercraft. Motorized traffic has decreased in recent years. This can be attributed to low water levels and new restrictions on motorized uses in the canyons of Big Bend National Park. None of the commercial companies offer river trips with motorized craft. In past years, most of the motorized boats were used above Santa Elena Canyon and in the lower end of the Boquillas Canyon stretch. Almost all these users were accessing the river from private lands outside the park boundary. During periods of low water, exposed rocks make the use of motorized craft impossible on many stretches of the river.

Most motorized boating takes place along private lands and in the state park, upriver from the park and outside the wild and scenic river. In addition, there is much motorboat use in the area above Heath Canyon and on down through Black Gap. The Big Bend National Park staff indicates that it is rare to see a motorboat downstream from the Black Gap Wildlife Management Area that has launched from there. Most motorboat traffic between Reagan Canyon and San Francisco Canyon is launched from private property and limited to running short reaches of

the river, between rapids. Sources familiar with the river say there is little motor use in this section, which is classified as *wild*.

Personal hovercraft are being used on some stretches of the river, but this is not considered a traditional use. There are concerns that hovercraft would be able to travel upriver to Big Bend National Park while other motorized craft are confined to segments of the river between rapids. Federal regulation 36 CFR 2.17 (e) prohibits hovercraft on all segments.

The designated segments of Rio Grande Wild and Scenic River are long enough to accommodate a variety of meaningful recreational experiences lasting from a few hours to several days. Most of the river is an easy float trip. Occasional rapids intersperse the calm stretches. These rapids are in the class II to class III difficulty range, with one in the class IV range, depending on the flow level. As part of the boating experience, parties will pull out on the shore for picnicking, overnight camping, short hikes, or sightseeing. Most private users plan their trips around a particular river segment, and only a small percentage travel through two or more river segments on the same trip (NPS 1997).

A journey through the Lower Canyons offers a true wilderness experience requiring five to ten days. Most boaters begin the trip at La Linda and take out at either Dryden Crossing (83 miles) or Foster's Ranch (119 miles), which is at the end of the Rio Grande Wild and Scenic River. A few river runners may continue to Langtry (137 miles). Visitation to the Lower Canyons section is primarily by boat. Remoteness, rugged terrain, and a lack of public access limit visitation from off the river.

A recreational user study conducted by Texas A&M University in 1993 indicated that users said that the most important reason they came to the Rio Grande was "getting away from the everyday routine." Experiencing solitude was also a primary motivational factor for participating in a river trip. Many boaters take day hikes in side canyons. River use peaks during

the spring, but some recreational use occurs throughout the year.

NPS regulations require that commercial boaters obtain an incidental business permit and pay a fee. A free backcountry use permit is required for private day and overnight use of floating craft on all parts of the Rio Grande administered by the National Park Service, except for persons day-fishing downstream from the national park boundary. This allows the park to deliver important safety information and monitor use. Boaters deposit used permits in boxes at takeout points, where park personnel collect them.

Historic Recreational Use on the Rio Grande, Lajitas to Val Verde County Line

The recreational use of the Rio Grande discussed in this section is between Lajitas and the Terrell/Val Verde County line. The area includes both the Upper Canyons (within Big Bend National Park) and the Lower Canyons (downstream from La Linda). It does not include the Colorado Canyon or other areas upstream from Lajitas. The Upper Canyons in the park are primarily the canyons of Santa Elena, Mariscal, and Boquillas.

Permit data from 1998 show that 3,980 people took float trips on the Rio Grande in Big Bend National Park (downstream of Lajitas), and 352 more people were permitted to float through the Lower Canyons to various takeout points (see table 10). Therefore, according to park records, the combined 1998 total was 4,332 persons and 789 trips on the river at some point between Lajitas and near Val Verde County. In 1999, the total number of river users in the same area increased to 5,840 persons and 1,069 trips. The National Park Service reports that river use increased abruptly in 1999 because of higher water levels compared to 1998.

The number of river users increased again in 2000, with 6,609 users and 1,104 trips. Thus, the average use for 1998–2000 was 5,594 persons. In the Lower Canyons section, the three-year average use was 646 persons; however, the growth rate in that period was 158.2%, as compared to 40.6% in the Big Bend section.

About 50%–60% of the people with permits who float the river in Big Bend National Park are typically on guided trips, but only about 10% of the people floating the river in the Lower Canyons are on guided trips. Outfitters provide a variety of services other than guiding in the Lower Canyons, including drop-off and pickup, vehicle shuttles, rentals of rafts, canoes, and other equipment, and paddling lessons.

**TABLE 10: 1998–2000 RIVER USE,
LAJITAS TO VAL VERDE COUNTY**

Location	Trips	Persons
1998		
Big Bend NP	743	3,980
Lower Canyons	46	352
Total	789	4,332
1999		
Big Bend NP	981	1,562
Lower Canyons	88	678
Total	1,069	5,840
2000		
Big Bend NP	1,006	5,700
Lower Canyons	98	909
Total	1,104	6,609

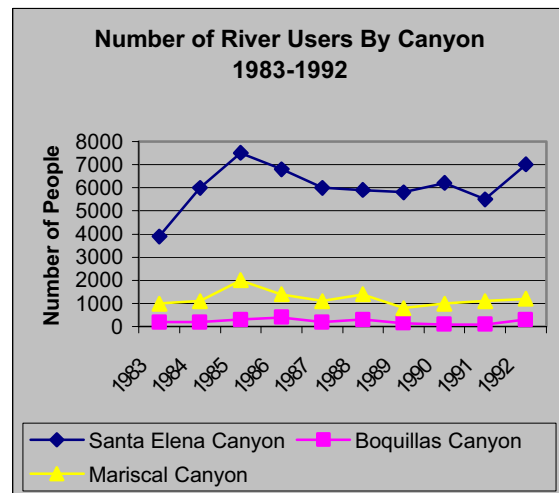
A study conducted by Texas A&M University in 1993 examined the total use on the Rio Grande from 1983 through 1992. The study focused on the Upper Canyons of Santa Elena, Mariscal, and Boquillas. The data were obtained from river use permits. River use peaked in 1985, when the total number of issued permits exceeded 2,500. In that year there were about 1,700 permits for private use and more than 800 permits for commercial use.

From 1983 to 1996 the total river use in the Upper Canyons decreased to about 900 permits (a drop of about 64%, which included a total of 600 private and 300 commercial trips). That study also showed that while private river users usually had more boats per permit, commercial users had more individuals per boat than did private rafters (NPS 1997). The historic river use (total number of people) is shown in figure 1.

Five years of visitation to the Rio Grande Wild and Scenic River are shown in table 11. From 1990 through 1996, Santa Elena Canyon had approximately four times as many permits as either Mariscal or Boquillas Canyon. During that

period, Santa Elena received five times as much commercial use as private use.

FIGURE 1



BOUNDARY AND NONFEDERAL LANDS

As was mentioned previously (p. **Error! Bookmark not defined.**), the issue of wild and scenic river boundaries on private land has proven contentious. Some riverside landowners have expressed concern about how federal wild and scenic river boundaries affect their property and how the National Park Service will manage the corridor. For proper and effective management of the river, the National Park Service believes it is imperative to develop close working relationships with the state, local counties, and private landowners.

About 36% of the Rio Grande Wild and Scenic River flows through federal lands in Big Bend National Park. As was discussed on page 53 and shown in table 10, riverside lands are owned by 17 private landowners and the state of Texas at Black Gap Wildlife Management Area. The Rio Grande Partnership Team includes representatives of federal, state, and county governments, commercial outfitters, private paddlers, environmental groups and private landowners. The team was established to identify and work through issues associated with nonfederal ownership and public use.

**TABLE 11: VISITATION TO THE LOWER CANYONS
OF THE RIO GRANDE, 1992–2001**

Year	Visitors	User-Days		
		Commercial	Private	Total
1992	962	1,230	5,632	6,862
1993	470	725	2,570	3,295
1994	693	1,054	4,591	5,645
1995	493	957	2,990	3,947
1996	498	1,047	3,022	4,069
1997	489	128	3,326	3,454
1998	352	73	2,386	2,459
1999	678	1,983	3,429	5,412
2000	909	1,094	2,984	4,078
2001	1,086	2,456	3,195	5,651
AVERAGE	663	1,075	3,413	4,487

In comparison with other Western states, Texas has little land in public ownership, and private property rights are taken seriously. There is a widespread fear among landowners that the federal government will “take” their property. Big Bend National Park and other parks and forests in Texas were purchased from private landowners by the federal or state government.

Section 6(b) of the Wild and Scenic Rivers Act contains the following provision:

If 50 per centum or more of the entire acreage outside the ordinary high water mark on both sides of the river within a federally administered wild, scenic, or recreational river area is owned in fee title by the United States, by the State or States within which it lies, or by political subdivisions of those States, neither Secretary shall acquire fee title to any lands by condemnation under authority of this Act. Nothing contained in this section, however, shall preclude the use of condemnation when necessary to clear title or to acquire scenic easements or such other easements as are reasonably necessary to give the public access to the river and to permit its members to traverse the length of the area or of selected segments thereof.

The current frontage of the Rio Grande Wild and Scenic River is 51% in private ownership and 49% in federal and state lands. Nothing in the Wild and Scenic Rivers Act gives or implies government control of nonfederal lands in the river corridor. Although Congress has included private lands within the boundaries of this wild and scenic river, management restrictions apply

only to public lands. The federal government has no power to regulate or zone private lands. The boundary contains the values for which the river was designated. This, in turn, is the area in which the National Park Service will focus work with local communities and landowners to develop effective strategies for protection.

Within the state of Texas, the Rio Grande is considered a navigable waterway; therefore, the U.S. half of the riverbed is the property of the state of Texas, and the public may use it for recreation.

The liability of landowners for the public recreating on their land also must be considered. The Texas Recreation Use Statute (appendix D) includes a broad definition of *trespasser*, which reduces the liability of landowners for people recreating on their lands. The “Acknowledgement of Risk” form on the river permits offers additional protection to private landowners.

SOCIOECONOMIC CONDITIONS

The study area for this plan is Brewster and Terrell Counties, Texas. In addition, the affected environment is also described for the Mexican states of Chihuahua and Coahuila (south of the Rio Grande). Economic conditions throughout the study area are described, with particular emphasis on river use and tourism.

Brewster County

In 2000, the household population of Brewster County was 8,466, and about 43% of the county residents were of hispanic descent. County public school enrollment in 1995 was 1,520 pupils. The median household income was about \$18,000 (U.S. Bureau of the Census 1998). The 1999 per capita income of \$20,110 ranked Brewster County 148th in the state. This was 75% of the statewide average and 70% of the national average. Since 1989, the average annual growth rate in per capita income has been about 5.9% (by comparison, the statewide growth rate for per capita income was 5.1%).

The total earnings of persons employed in Brewster County were \$176.8 million in 1999. During the preceding 10 years, earnings increased by 5.6% per year, and about 22.7% of all residents had 1997 incomes below the poverty line. About 16% of all hispanic individuals were below the poverty line (U.S. Bureau of the Census 1998 and 2000).

An average of 5,440 persons from this county were in the 2000 civilian labor force, and an average of 5,320 were employed (an unemployment rate of 2.2%). Most employment was associated with retail trade and services. Alpine is the largest community in Brewster County, with a 2000 population of 5,672. There were 2,772 persons of hispanic origin in that year. Brewster County had total of 4,614 housing units in 2000, 3,669 of which were occupied. About 60% of the occupied units were owner-occupied. The 1997 median rent in town was \$294 per month, and the median home value was \$46,900 (U.S. Bureau of the Census 1998 and 2000).

Terrell County

Terrell County had a population of 1,081 in 2000, which was a decline of 23.3% from the 1990 population (2000 census). About 51.5% of the county's residents in 2000 were of hispanic descent. County public school enrollment in 1995 totaled 284 students. In 1990, 216 people over 25 had completed less than the 9th grade (1990 census).

The 1999 per capita income of \$21,887 ranked Terrell County 97th in the state. This was 82% of the statewide average and 77% of the national average. Over the past 10 years, the county per capita income increased by about 4.4% per year, compared to a statewide increase of 5.1%. The total earnings of persons employed in Terrell County were \$26.3 million in 1999 (Bur. of Econ. Anal. 1999). Over the preceding 10 years the earnings growth rate was 1.9% per year. Approximately 21% of all residents had 1997 incomes below the poverty line (2000 census). In 1990, about 40% of the hispanic people in Terrell County were below the poverty line (U.S. Bureau of the Census 1990 and 1998). The 2000 average civilian unemployment rate was 2.6%. Most employment in the county is associated with retail trade and services.

Demographic information for the communities of Alpine and Sanderson is summarized in table 12.

TABLE 12: SELECTED ECONOMIC INFORMATION, ALPINE AND SANDERSON, TEXAS

	Alpine	Sanderson
Population in 2000	5,786	861
Households in 2000	2,429	356
Median 1990 household income	\$17,479	\$22,639
Total housing units in 2000	2,852	635
Average 1990 monthly rental	\$ 294	\$ 255
SOURCE: U.S. Bureau of the Census 1990 and 2000.		

Study Area Population Records

The 2000 study area population is estimated to be 16,755. This represents a decrease of about 1,100 persons (–6%) compared to the 1950 population (1950–2000 census). Individual population changes over the period 1950–2000 are illustrated in table 13. While the population of Brewster County increased by 15.8%, the population of Presidio County decreased by 2%, and the population of Terrell County decreased by two-thirds.

Study Area Economic Conditions Since 1950

For this assessment, economic conditions in the study area are generally represented by the

change in per capita income. Between 1960 and 1999 (the most recent year for which data are available), the average per capita income for study area residents grew by an average of about 2.6% per year, as shown in table 14 (U.S. Census, 1960–1990 and 1999). The Census Bureau was unable to provide data for 1950. Although income has risen rapidly since 1990, the income for study area residents still is considerably lower than the statewide average.

PARTNERSHIPS AND INTERNATIONAL COOPERATION

The National Park Service is ultimately responsible for managing the Rio Grande Wild and Scenic River, but the agency cannot effectively manage almost 200 miles of the river without the participation and support of individuals, organizations, the state government, and local governments. Thus, the Rio Grande Partnership Team was formed to gather information to be used in developing alternatives and actions for managing the wild and scenic river. Partnership approaches to river planning and management have been successfully implemented for wild and scenic rivers on private lands across the United States.

As was described on page 60, the Rio Grande Partnership Team, which includes representatives of federal, state, and county governments, commercial outfitters, private paddlers, environmental groups, and private landowners, was established to identify and work through issues associated with nonfederal ownership and public use. To resolve boundary issues and landowner concerns, which has been a top priority of the team, landowner agreements have been initiated.

The congressional designation of the Rio Grande as a wild and scenic river specifically indicated that only the American side of the river is included. The international boundary between the United States and Mexico, and the southern park boundary, is described as the center of the deepest channel of the Rio Grande. The Mexican government owns and regulates the south half of the river and 50 meters up the shore. Boaters and anglers regularly use the Mexican shore. In addition, land uses in Mexico affect the quality and quantity of water in the river.

People of both nations cross the border in Big Bend National Park at Santa Elena, San Vicente, and Boquillas. These rowboat ferry crossings are used by pedestrians only, and they have no support facilities. Dryden Crossing was used historically. Other crossings may exist in the Lower Canyons.

Mexico has established two protected areas that are adjacent to the river. Cañon de Santa Elena and Maderas del Carmen were set aside in 1994 to protect wildlife and natural features. The creation of these protected areas raises possibilities for developing joint river management strategies. Although the wild and scenic river designation does not include the Mexican side of the river, it would be important for future management to involve Mexican state and federal governments in cooperative partnerships. Because binational cooperation is important to the future of the Rio Grande Wild and Scenic River, this plan contains discussion of possible cooperation between the United States government and its counterparts in Mexico.

TABLE 13: POPULATION TRENDS, 1950–2000

County	1950	1960	1970	1980	1990	2000	% Change, 1950–2000
Brewster	7,309	6,434	7,780	7,573	8,681	8,466	15.8%
Presidio	7,354	5,460	4,842	5,188	6,637	7,208	– 2.0%
Terrell	3,189	2,600	1,940	1,595	1,410	1,081	– 66.0%
Total	17,852	14,494	14,562	14,356	16,728	16,755	– 6.0%

SOURCE: U.S. Bureau of the Census 1950–2000.

TABLE 14: STUDY AREA PER CAPITA INCOME 1950–1999

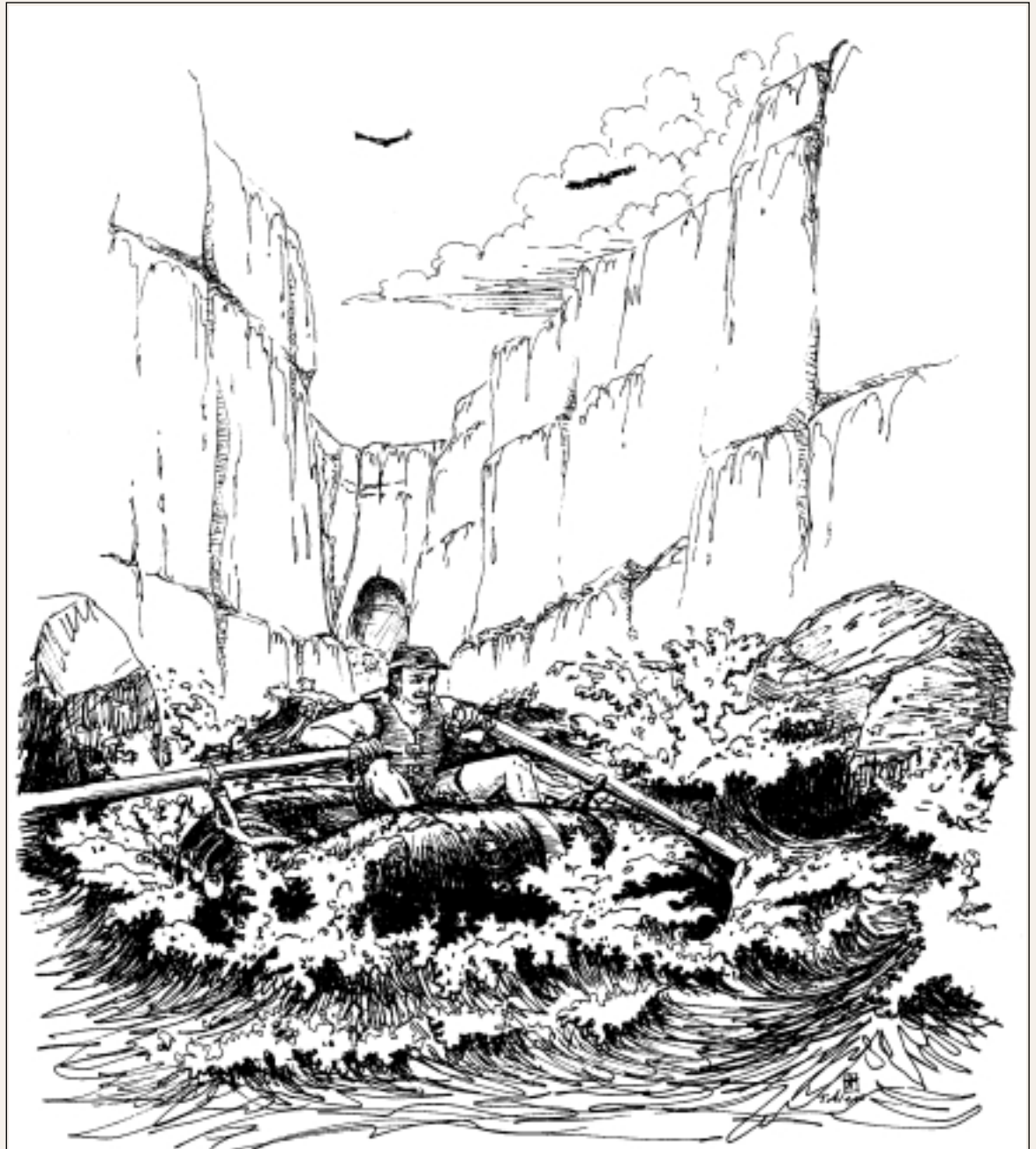
County	1960	1970	1980	1990	1999	Change, 1960–1999
Brewster	\$5,035	\$6,279	\$ 8,105	\$10,730	\$20,111	299%
Terrell	\$7,055	\$6,826	\$11,845	\$10,146	\$21,887	210%

SOURCE: U.S. Bureau of the Census 1960–1999.

AFFECTED ENVIRONMENT

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Environmental Consequences



Original art by George Pettit used by permission of the artist.

INTRODUCTION AND METHODOLOGY

INTRODUCTION

The National Environmental Policy Act requires that environmental impact statements disclose the environmental impacts of a proposed action (implementation of this plan). This chapter contains the analyses of the potential effects of the alternatives on resources, visitor experience, and the socioeconomic environment of the river. Considering these effects provides a basis for comparing the advantages and disadvantages of each alternative.

The alternatives presented in this document would give broad management direction. Because of the sometimes broad, conceptual nature of their potential consequences, they can be analyzed only in general terms. Before undertaking specific action as a result of this plan, park managers would determine whether or not more detailed environmental documents would need to be prepared.

For each impact topic, there is a description of the potential positive and negative effects that could result from the actions of each alternative, a discussion of the cumulative effects, if any, and a conclusion statement. At the end of this chapter there is a brief discussion of unavoidable adverse effects, a comparison of short-term uses and long-term productivity, and any irreversible and irretrievable commitments of resources.

METHODS OF ASSESSING EFFECTS

The potential impacts are described in terms of type (beneficial or adverse effects), location (site-specific, local, or regional effects), duration (short-term effects, lasting less than a year, or long-term effects, lasting more than a year), and intensity (negligible, minor, moderate, or major effects). Because definitions of intensity vary by type of resource, intensities are defined separately for each impact topic analyzed in this document. The impact analyses were derived through professional judgment, from research,

and from the study of previous projects that had similar effects.

Definitions

The following definitions apply to all impact topics.

Duration. A *long-term* effect would last one year or longer; a *short-term* effect would last less than one year.

Location. If the locations of effects would differ, they are described separately for segments of the river within Big Bend National Park and segments outside of the park such as in the Lower Canyons (also see “Management of Corridor on Nonfederal Lands,” p. **Error! Bookmark not defined.**).

Cumulative Effects

The regulations of the Council on Environmental Quality, which implement the National Environmental Policy Act, require that cumulative effects be assessed in the decision-making process for federal projects. Cumulative effects are defined in 40 CFR 1508.7 as follows:

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions.

In this document the cumulative impacts have been considered for all impact topics and both alternatives. Resource-specific discussions of cumulative impacts are presented for each impact topic.

Assumptions

Several assumptions must be made about past, present, and future uses of the region so that the cumulative effects can be analyzed, particularly in regard to future actions. The following assumptions apply to this plan:

- The International Boundary and Water Commission could negotiate for changes in water allocations between the United States and Mexico, and that could affect the flow regime of the Rio Grande.
- The types of river use that are occurring now will continue, and in addition there may be new, different future uses.
- Commercial and residential development, tourism, recreation, agriculture, and road construction have occurred, are occurring, and are expected to continue.
- Several ranches along the river have been or are going to be subdivided into small parcels and sold as ranchettes.
- Other types of development have occurred and will continue on private lands in the United States and on the Mexican side of the river.

Developments could affect several resources.

Implementing the forthcoming Big Bend *General Management Plan* would affect the future management and decision-making in the park. Any actions that also would affect river management are discussed in this chapter.

Impairment of Park Resources or Values

In addition to determining the environmental consequences of the alternatives, the potential effects must be analyzed to determine if any actions would impair the resources, as directed by NPS *Management Policies 2001* (NPS 2001b) and DO 12, *Conservation Planning and Environmental Impact Analysis* (NPS 2001a).

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, begins with a mandate to conserve park resources and values. NPS managers always must seek ways to

avoid or minimize, to the greatest degree practicable, any adverse effects on the resources and values of a park system unit. However, the laws do give the National Park Service the management discretion to allow impacts on resources and values when necessary and appropriate to fulfill the purposes of a national park system unit, as long as the impact does not constitute *impairment* of the affected resources and values.

Although Congress has given the National Park Service the management discretion to allow certain impacts, that discretion is limited by the statutory requirement that a park's resources and values must be left unimpaired unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of the resources and values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

Any effect on a resource or value may be an impairment, but an action would be most likely to constitute impairment if it would result in a major effect on a resource or value whose conservation would be (a) necessary to fulfill specific purposes identified in the park unit's establishing legislation or proclamation, (b) key to the natural or cultural integrity of the park system unit or opportunities to enjoy it, or (c) identified as a goal in the general management plan of the park system unit or other relevant NPS planning documents. Impairment applies only to resources and values on federally owned lands. It could result from NPS management activities, from visitor activities, or from activities undertaken by concessioners, contractors, and others operating in the park.

A determination about impairment has been made for each impact topic on NPS lands analyzed in this document. If there would be beneficial effects on a resource, or no effect, it can be assumed that there would be no impairment.

EFFECTS ON NATURAL RESOURCES

SCENIC AND AESTHETIC VALUES

Methods of Assessing Effects

The intensity of effects on scenic and aesthetic values was rated as follows:

Negligible: Natural sights and sounds might be affected, but the effects would be at or below the level of detection, or the changes would be so slight that they would result in no measurable or perceptible effect on wildlife or visitor experiences.

Minor: A change in the natural sights and sounds would be detectable, although small and localized, and it would cause little effect on wildlife or the visitor experience.

Moderate: A change in the natural sights and sounds would be readily detectable, affecting the behavior of wildlife or visitors in a large area.

Major: An obvious change in the natural sights and sounds would be severely adverse or exceptionally beneficial, and it would affect the health of wildlife or visitors or cause a substantial, highly noticeable change in the behavior of wildlife or visitors in a local or regional area.

Effects of Alternative A

Analysis — Segments in Big Bend National Park. Scenic and aesthetic values such as natural landscapes, soundscapes, and views of the night sky would not be affected by the actions of this alternative.

Analysis — Segments outside of Big Bend National Park. Although the no-action alternative would not directly affect scenic values, it would allow potentially affecting actions to be carried out on lands adjacent to the river without NPS consultation. Landowners would not be required to work with the National Park Service to

mitigate possible impacts from riverside development. This could lead to adverse effects on scenic quality and aesthetic values from incompatible development or land uses.

Cumulative Effects. Scenic and other natural aesthetic values in the river corridor could be negatively affected by certain types of land uses, including commercial or residential development, agriculture, road construction, or debris piles. Several ranches along the river have been or are going to be subdivided into small parcels and sold as ranchettes. The new owners of these parcels might construct residences or other structures in sight of the river, which could affect the scenic quality of the corridor.

Other types of development have occurred and will continue to occur on private lands and on the Mexican side of the river. These actions would contribute negligible to moderate long-term adverse impacts. Although the wild and scenic river designation does not include the Mexican side of the river, scenic values do not stop in the middle of the river. This no-action alternative would not directly contribute to cumulative effects on the scenery, but continuing the existing conditions and land use traditions means that actions that could affect the scenic value would continue.

Conclusion. Implementing alternative A would not directly affect scenic values, but it could result in continuing long-term minor adverse effects on these values outside of Big Bend National Park.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has de-

terminated that no impairment of scenic and aesthetic values would result from alternative A.

Effects of Alternative B

Analysis — Segments in Big Bend National Park. Implementing the preferred alternative would increase management emphasis on scenic and aesthetic values in the river corridor. This would strengthen the protection and enhance these values, a minor long-term beneficial effect.

Analysis — Segments outside of Big Bend National Park. In alternative B, the inclusion of a clause in landowner agreements requiring landowners to notify and consult with the National Park Service before beginning any proposed development would improve the protection of scenic values in the river corridor. The National Park Service then would work with landowners by recommending mitigation to reduce visual impacts (for example, through relocation or alternate construction methods). Cooperative management efforts with Mexican authorities would emphasize the protection of scenic quality on the southern bank.

Natural sounds would continue to predominate in most segments of the river. Nothing in alternative B would increase light pollution, affecting night sky viewing opportunities.

Cumulative Effects. Scenic and other natural aesthetic values in the river corridor could be adversely affected by land uses such as commercial or residential development, agriculture, road construction, or debris piles. Several ranches along the river have been and are going to be subdivided into small parcels and sold as ranchettes, and the new owners could construct residences or other structures in sight of the river, affecting scenic values.

Other types of development have occurred and will continue to occur on private U.S. lands and on the Mexican side of the river. These actions would cause long-term negligible to moderate adverse impacts. Although the wild and scenic river designation does not include the Mexican side of the river, scenic values do not stop in the

middle of the river. The Big Bend *General Management Plan* does not propose any new development in the river corridor. Alternative B would reduce the cumulative effects on the scenery through its protective measures and emphasis on cooperative management.

Conclusion. Alternative B would result in long-term minor to moderate beneficial effects on the scenic and aesthetic values of the Rio Grande Wild and Scenic River.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that no impairment of scenic and aesthetic values would result from alternative B.

FISH AND WILDLIFE

Methods of Assessing Effects

All available information on known resources was compiled. Predictions about short-term and long-term site impacts were based on previous studies of the effects of visitors on fish and wildlife and recent monitoring data from Big Bend National Park.

The intensity of effects on fish and wildlife was rated as follows:

Negligible: A change to a population or individuals of a species could occur, but it would be so small that its effect would not be measurable or perceptible.

Minor: A small, localized change to a population or individuals of a species could occur, but it would have little effect.

Moderate: A measurable change to a population or individuals of a species could occur

and would be of consequence to the species, but it would be localized.

Major : There would be a noticeable, measurable change in a population or individuals of a species, resulting in a severely adverse or major beneficial and possibly permanent effect on the species.

Effects of Alternative A

Analysis — Segments in and outside of Big Bend National Park. Alternative A would not include any action that would cause effects, adverse or beneficial, on fish or wildlife in the river corridor. The existing regulations on fishing would continue. No project-related ground disturbance is proposed under this alternative, and there would be no potential to affect fish and wildlife habitat.

Cumulative Effects. Fish and wildlife in and along the Rio Grande are being adversely affected by human activities in the region. Commercial and residential development could displace animals and fragment habitat. Human presence near the river could prevent wildlife from getting needed water. Fish could be affected by the reduction of river water for agricultural, industrial, and domestic uses. Aquatic life could be adversely affected by degraded water quality from land uses such as livestock grazing, agriculture, and development. These actions would result in long-term negligible to moderate adverse impacts. This no-action alternative would not result in any additional impacts; thus, it would not contribute to cumulative effects on the region's fish and wildlife resources.

Conclusion. Implementing alternative A would not affect fish or wildlife.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or

any other relevant NPS planning documents. Therefore, the National Park Service has determined that fish and wildlife resources or values would not be impaired by alternative A.

Effects of Alternative B

Analysis — Segments in Big Bend National Park. The continued monitoring and management of fish and wildlife populations under alternative B would result in the quick identification of potential threats to diversity or species population numbers. Timely remedial actions would be implemented as outlined in resource management plans, resulting in long-term minor beneficial effects on fish and wildlife.

Analysis — Segments outside of Big Bend National Park. The increased monitoring of fish and wildlife populations in the Lower Canyons under alternative B would reveal whether populations were increasing or declining. If declining populations or other impacts (such as the harassment of wildlife or the degradation of aquatic habitat) were discovered, where feasible, the National Park Service would take actions — with landowner cooperation — to reduce or eliminate the cause of the problem. Landowners would help with habitat restoration along the river. Protecting and monitoring fish and wildlife would be easier under this alternative with landowner agreements in place and an atmosphere of cooperation.

Continuing NPS cooperation with federal and state wildlife agencies to implement conservation measures would result in long-term minor beneficial effects on fish and wildlife populations. Initiating cooperative management efforts to maintain or enhance the quality and quantity of Rio Grande water for the benefit of aquatic species also would result in long-term minor beneficial effects on fish and wildlife, as would the additional conservation, monitoring, and remedial actions of alternative B.

Human presence near the river could prevent wildlife from obtaining needed water. This alternative would not increase the number of visitors to the river over the historic maximums.

Cumulative Effects. Fish and wildlife in and along the Rio Grande are being adversely affected by human activities in the region. Commercial and residential development could displace animals and fragment habitat. Human presence near the river could prevent wildlife from obtaining needed water. Fish could be affected by the reduction of river water for agricultural, industrial, and domestic uses. Aquatic life could be adversely affected by degraded water quality from land uses such as livestock grazing, agriculture, and development. These actions would contribute to long-term negligible to moderate adverse impacts. Implementing alternative B would result in beneficial effects and would not contribute to cumulative adverse effects on the region's fish and wildlife resources.

Conclusion. Alternative B would result in long-term minor beneficial effects on fish and wildlife.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that fish and wildlife resources or values would not be impaired by alternative B.

SPECIAL STATUS SPECIES

Methods of Assessing Effects

Information about possible threatened, endangered, or candidate species and species of special concern was gathered from research and specialists. Known locations of habitat associated with threatened, endangered, and candidate species and species of special concern were compared with the locations of proposed developments and modifications of existing facilities. Known impacts caused by visitor use also were considered.

The intensity of effects on special status species was rated as follows:

Negligible: A change to a population or individuals of a species or designated critical habitat could occur, but it would be so small that its effect would not be measurable or perceptible. The change would result in a *no effect* opinion from the U.S. Fish and Wildlife Service.

Minor: A small, localized change to a population or individuals of a species or designated critical habitat could occur, and it would be measurable. It would result in a *not likely to adversely effect* opinion from the U.S. Fish and Wildlife Service.

Moderate: A measurable change to a population or individuals of a species or designated critical habitat could occur, and it would be of consequence to the species, but it probably would result in a *not likely to adversely effect* opinion from the U.S. Fish and Wildlife Service.

Major : A noticeable, measurable change could occur in a population or individuals of a species or on a resource or designated critical habitat resulting in a severely adverse or major beneficial and possibly permanent effect on the species. It would result in a *likely to adversely effect* opinion from the U.S. Fish and Wildlife Service.

Effects of Alternative A

Analysis — Segments in and outside of Big Bend National Park. None of the actions of alternative A would adversely affect special status species in the management area. Terrestrial or aquatic habitat would not be disturbed, and the current status of listed fish and wildlife species would not be affected; therefore, alternative A would not affect special status species.

Cumulative Effects. Special status species in and along the Rio Grande are being adversely affected by human activities in the region. Com-

mercial and residential development could displace animals and fragment habitat. Human presence near the river could prevent wildlife from obtaining needed water. Fish could be affected by the dewatering of the river for agricultural, industrial, and domestic uses. Aquatic life could be adversely affected by degraded water quality from land uses such as livestock grazing, agriculture, and development. Sensitive plants could be adversely affected by collection or inadvertent trampling by humans. These actions would contribute to long-term negligible to moderate adverse impacts. Implementing alternative A would not contribute to cumulative effects on the region's sensitive species of fish and wildlife or plants.

Conclusion. Alternative A would have no effect on special status species in the river corridor.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that no impairment of resources or values related to special status species would result from alternative A.

Effects of Alternative B

Analysis — Segments in Big Bend National Park. The continued monitoring and management of fish and wildlife populations under alternative B would result in long-term minor beneficial effects on fish and wildlife.

The emphasis on protection in this alternative would allow the National Park Service to increase its efforts in inventory and monitoring studies for listed species and other species of concern, as well as monitoring to determine if visitation was affecting fish and wildlife (such as trampling of vegetation, harassment of wildlife, or degradation of aquatic habitat). This would

result in long-term minor beneficial effects on fish and wildlife. Other monitoring would assess air and water pollution and dewatering, and actions would be taken to reduce or eliminate such impacts.

Human presence near the river could adversely affect wildlife by preventing them from getting needed water; however, alternative B would not cause more visitors to come to the river. If research showed that nesting birds or other wildlife were being disturbed, restrictions on visitation would be applied to minimize the disturbance. Reducing disturbances would result in long-term minor beneficial effects on fish and wildlife.

Interpretation and information media would be used to encourage the protection of listed species. Continued cooperation between the National Park Service and federal and state wildlife agencies to implement recovery plans or other conservation efforts would maintain or enhance the quality and quantity of Rio Grande water, a long-term beneficial effect on aquatic species.

Analysis — Segments outside of Big Bend National Park. The actions discussed above also would take place on nonfederal lands when landowners agreed. In areas where these actions were taken, they would result in long-term beneficial effects. Protecting and monitoring fish and wildlife would be easier under this alternative with landowner agreements in place and an atmosphere of cooperation.

Alternative B does not contain any actions that would affect the *Big Bend gambusia*, which lives only in a protected pond in the park, or its habitat. NPS management goals include supplementing spring flows with well water in the dry season, restoring habitat to approximate predevelopment conditions, eradicating mosquitofish from springs and streams in the campground area, and eventually establishing Big Bend gambusia in other suitable locations. Nothing in alternative B would conflict with any recovery efforts planned for the species.

Alternative B does not include any actions that would affect the *black-capped vireo* or its habitat. Shrubs that comprise its preferred nest sites (shinnery oak or sumac) grow primarily away from the river and would not be affected.

The cactus species *bunched cory cactus* and *Chisos Mountains hedgehog cactus* typically are found on upland sites away from the river, although individual plants may be in the river corridor. The preferred alternative does not include any actions that would directly affect these plants. To reduce the potential of future impacts, NPS education efforts would make visitors aware of sensitive species and discourage plant collection.

Cumulative Effects. Fish and wildlife in and along the Rio Grande are being adversely affected by human activities in the region. Commercial and residential development and mineral extraction could displace animals and fragment habitat. Fish could be affected by the reduction of river water for agricultural, industrial, and domestic uses. Aquatic life could be adversely affected by degraded water quality from land uses such as livestock grazing, agriculture, and development. Sensitive plants could be affected by collection or by inadvertent trampling by visitors and livestock. These actions, viewed together, would cause adverse impacts varying from negligible to moderate, depending on the species and circumstance.

Implementing alternative B would result in beneficial effects and would not contribute to cumulative adverse effects on the region's fish and wildlife resources.

The Big Bend *General Management Plan* would involve relocating some campsites at Rio Grande Village, and the park staff would seek a separate water source so that the fish and people no longer would have to share one source. These actions would reduce impacts on the endangered Big Bend gambusia. Alternative B would include monitoring and beneficial actions to protect listed species, adding a positive increment and reducing the magnitude of the impact of

other actions on the region's special status species.

Conclusion. Alternative B would not affect the Big Bend gambusia, the black-capped vireo, the bunched cory cactus, or the Chisos Mountain hedgehog cactus, and its increased protective actions would result in minor long-term beneficial effects on these species.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that no impairment of resources or values related to special status species would result from alternative B.

WATER QUALITY AND QUANTITY

Methods of Assessing Effects

All available information on known natural resources was compiled. Predictions about short-term and long-term site impacts were based on previous studies of the impacts on natural resources caused by visitors and on recent monitoring data from the Big Bend area.

The intensity of effects on water quality and quantity was rated as follows:

Negligible: A small change to a water resource would occur that would not be of any measurable or perceptible consequence.

Minor: There would be a small, localized change to a water resource that would be of little consequence.

Moderate: A measurable change to a water resource would occur that would be of consequence to the resource, but it would be local.

Major : A noticeable, measurable change in a water resource would result in a severely adverse or major beneficial and possibly permanent effect on the resource.

Effects of Alternative A

Analysis — Segments in and outside of Big Bend National Park. None of the actions of alternative A would adversely or beneficially affect the quality or quantity of water in the Rio Grande. Existing conditions and situations would continue, and no water would be diverted from the river. No actions would be taken that would affect water quality, and no additional conservation methods would be initiated.

Cumulative Effects. Water has been and is being removed throughout the length of the Rio Grande for agricultural, industrial, and domestic uses. Occasionally in recent times there has been no surface water flow in long stretches of the river upriver from Big Bend National Park and at the mouth of the river in the Gulf of Mexico.

The water quality has been degraded from land uses such as livestock grazing, agriculture, and development. Livestock grazing can introduce animal excrement (with associated pathogens), which can disrupt natural cycles. Sedimentation can occur from erosion of overgrazed lands. The National Park Service cannot control cattle on the Mexican side of the river.

Runoff or irrigation return from agricultural land carries pesticides and increased mineral content from soil leaching. Riverside industry might introduce various substances, depending on the type of operation. Improper treatment of sewage could introduce bacteria and unnatural levels of organic material. These actions would result in long-term negligible to moderate adverse effects on water resources.

The *General Management Plan* for Big Bend National Park proposes actions that could protect or enhance water quality and conservation. Alternative A of this plan would not result in any actions that would add to the impacts from other actions; therefore, it would not contribute

to the cumulative effects on the quality or quantity of water in the Rio Grande.

Conclusion. Alternative A would not have any adverse or beneficial effect on the quality or quantity of water in the Rio Grande.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that no impairment of resources or values related to water quality and quantity would result from alternative A.

Effects of Alternative B

Analysis — Segments in and outside of Big Bend National Park. Cooperation under this alternative between the National Park Service and other agencies such as the Bureau of Reclamation, the International Boundary and Water Commission, and the Mexican Government could lead to agreements that would allow a minimum flow of water through the segments of the Rio Grande Wild and Scenic River. It also might lead to additional education of water users, which could reduce the amount of harmful chemicals introduced into the river. In addition, removing exotic plants along the shores could increase the amount of water available for native vegetation. The park would explore the feasibility of acquiring additional water rights along the Rio Grande for the purpose of increasing flows in the river. These actions would provide long-term minor to moderate beneficial effects.

Cumulative Effects. Water has been and is being removed throughout the length of the Rio Grande for agricultural, industrial, and domestic uses. Occasionally in recent times there has been no surface water flow in long stretches of the river upriver from Big Bend National Park and at the mouth of the river in the Gulf of Mexico.

The water quality has been degraded from land uses such as livestock grazing, agriculture, and development. Livestock grazing can introduce animal excrement (with associated pathogens), which can disrupt natural cycles. Sedimentation can occur from erosion of overgrazed lands.

Runoff or irrigation return from agricultural land carries pesticides and increased mineral content from soil leaching. Riverside industry can introduce various substances, depending on the type of operation. Improper treatment of raw residential sewage can introduce bacteria and unnatural levels of organic material. These actions would result in long-term negligible to moderate adverse impacts on water resources.

The *General Management Plan* for Big Bend National Park proposes actions that could protect or enhance water quality and conservation, resulting in long-term beneficial effects. Irrigation needs at Rio Grande Village would be reduced by 50%. Trees and plants that are heavy water users would be phased out to reduce the need for irrigation. Water quality would be protected by upgrading sewage treatment systems. The park would explore acquiring more water rights on the Rio Grande in the park to increase the flows in the river.

Alternative A of this plan would add a minor positive component to the cumulative effects on the quality and quantity of water in the Rio Grande.

Conclusion. Through cooperative efforts to maintain a minimum flow and reduce water contaminants, alternative B would result in long-term minor to moderate beneficial effects on Rio Grande water quality and quantity. This alternative would benefit water resources.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or

any other relevant NPS planning documents. Therefore, the National Park Service has determined that no impairment of resources or values related to water quality and quantity would result from alternative B.

VEGETATION

Methods of Assessing Effects

The intensity of effects on vegetation was rated as follows:

Negligible: A change to vegetation could occur, but it would be so small that its effect would not be measurable or perceptible.

Minor: A small, localized change in vegetation could occur, but it would have little effect.

Moderate: A measurable change in vegetation could occur and would be of consequence, but it would be localized.

Major : There would be a noticeable, measurable change in vegetation, resulting in a severely adverse or major beneficial and possibly permanent effect.

Effects of Alternative A

Analysis — Segments in Big Bend National Park. No actions of alternative A would affect vegetation in the river corridor. No vegetative manipulation is proposed under this alternative, and there would be no project-related ground disturbance that could affect vegetation. Therefore, implementing alternative A would have no effect on vegetation.

Analysis — Segments outside of Big Bend National Park. No actions of alternative A would affect vegetation on nonfederal land in the river corridor. Invasive exotic plants would continue to encroach on native vegetation. The adverse effects on vegetation at heavily used sites that occur from visitation would continue.

Cumulative Effects. Native vegetation in the region is being adversely affected by development and other land use practices on federal, state, and private lands. Livestock grazing affects species composition and vegetative health. Commercial and residential development destroys native vegetation and often introduces or spreads invasive nonnative species. Visitor activities in heavily used areas such as campsites can damage or destroy vegetation. These actions would continue, resulting in regional negligible to minor long-term adverse effects. Implementing alternative A would not add to or increase any of these existing actions and so would not contribute to the cumulative effects on native vegetation in the region.

Conclusion. Implementing alternative A, the no-action alternative, would not result in any additional impacts on vegetation along the river corridor.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that vegetative resources and values would not be impaired by alternative A.

Effects of Alternative B

Analysis — Segments in Big Bend National Park. No construction would be proposed in alternative B that would affect vegetative resources. In rare instances, some cutting or trimming of riverside vegetation might be necessary to allow access to campsites on the shore or to create new sites. This would take place primarily in nonnative vegetation; therefore, the long-term adverse effects on native vegetation would be none to negligible.

Recreational use would be managed to reduce undue effects on natural vegetation. For ex-

ample, new campsites on federal land could be created to disperse use. Removing exotic plants would allow native vegetation to thrive. Overall, alternative B would result in long-term beneficial effects on native vegetation in the river corridor because native vegetation would be protected and competing exotics removed.

Analysis — Segments outside of Big Bend National Park. The effects from alternative B on vegetation inside Big Bend National Park also would result from alternative B for vegetation on nonfederal lands. However, the eradication of invasive species on nonfederal lands would be carried out only with the agreement of the landowners.

Cumulative Effects. Native vegetation in the region is being adversely affected by development and other land use practices on federal, state, and private lands. Livestock grazing affects species composition and vegetative health. Commercial and residential development destroys native vegetation and often introduces or spreads invasive nonnative species. Visitor activities in heavily used areas such as campsites can damage or destroy vegetation. These actions would continue, causing long-term negligible to minor adverse regional effects. Implementing alternative B would contribute a minor benefit to the cumulative effects on native vegetation in the region.

Conclusion. Alternative B would result in a long-term minor beneficial effect on native vegetation in the river corridor.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that vegetative resources and values would not be impaired by alternative B.

EFFECTS ON CULTURAL RESOURCES

EFFECTS ON CULTURAL RESOURCES AND SECTION 106 ANALYSES

The description of the potential effects on cultural resources in this document as to type, context, duration, and intensity is consistent with the regulations of the Council on Environmental Quality (CEQ) (40 CFR 1508.22), which implement the National Environmental Policy Act. The analyses also are intended to comply with the requirements of section 106 of the National Historic Preservation Act.

In accordance with the regulations of the Advisory Council on Historic Preservation for implementing section 106 of the National Historic Preservation Act (36 CFR 800, *Protection of Historic Properties*), the potential effects on cultural resources were identified and evaluated by (a) determining the area of potential effects; (b) identifying the cultural resources present in the area of potential effects that were either listed on or eligible to be listed on the National Register of Historic Places; (c) applying the criteria of adverse effect to affected cultural resources either listed on or eligible to be listed on the National Register; and (d) considering ways to avoid, minimize or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either *adverse effect* or *no adverse effect* also must be made for affected cultural resources. An *adverse effect* occurs whenever an action would directly or indirectly alter any characteristic of a cultural resource that qualifies it for inclusion on the national register. For example, an action might diminish the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects that would be caused by the actions of an alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5, *Assessment of Adverse Effects*). A determination of *no adverse effect* means there would be an effect, but the effect would not diminish in any way the characteristics of

the cultural resource that qualify it for inclusion on the National Register of Historic Places.

The CEQ regulations and the National Park Service's DO-12, *Conservation Planning, Environmental Impact Analysis and Decision-making* also require a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (for example, reducing the intensity of an impact from major to moderate or minor). However, any resultant reduction in the intensity of an impact by mitigation is an estimate of the effectiveness of the mitigation under the National Environmental Policy Act only. It does not suggest that the level of the effect as defined by section 106 would be similarly reduced. Although adverse effects under section 106 may be mitigated, the effect remains adverse.

A section 106 summary is included in the impact analysis sections for cultural resources under the preferred alternative. The section 106 summary, which is intended to meet the requirements of section 106 of the National Historic Preservation Act, is an assessment of the effect of the undertaking (implementing the alternative) on cultural resources, based on the criteria of effect and adverse effect found in the regulations of the Advisory Council on Historic Preservation.

ARCHEOLOGICAL RESOURCES

Methods of Assessing Effects

Certain important research questions about human history can be answered only by the actual physical material of cultural resources. Archeological resources have the potential to answer, in whole or in part, such research questions. An archeological site can be eligible to be listed on the National Register of Historic Places if the site has yielded, or may be likely to yield, information important in prehistory or history. Information was compiled from research, subject experts and NPS staff.

The intensity of effects on archeological resources was rated as follows:

Negligible: The effect would be at the lowest levels of detection — barely measurable, with no perceptible adverse or beneficial consequences on archeological resources. For section 106 purposes, the determination would be *no adverse effect*.

Minor: Adverse Effect — any disturbance of site(s) would be confined to a small area with little, if any, loss of important information potential. For section 106 purposes, the determination would be *no adverse effect*.

Beneficial Effect — site(s) would be preserved in a natural state. For section 106 purposes, the determination would be *no adverse effect*.

Moderate: Adverse Effect — any disturbance of site(s) would not result in a substantial loss of important information. For section 106 purposes, the determination would be *adverse effect*. **Beneficial Effect** — site(s) would be stabilized. For section 106 purposes, the determination would be *no adverse effect*.

Major : Adverse Effect — any disturbance of site(s) would be substantial and would result in the loss of most or all of the site and its potential to yield important information. For section 106 purposes, the determination would be *adverse effect*. **Beneficial Effect** — active intervention to preserve site(s). For section 106 purposes, the determination would be *no adverse effect*.

Effects of Alternative A

Analysis — Segments in Big Bend National Park. Implementing the no-action alternative would have no effect, either beneficial or adverse, on archeological resources along the Rio Grande. The existing conditions and situations would continue. The protection of archeological resources in the park according to existing laws and policies would continue. There would be no

project-related ground disturbance with the potential to affect archeological resources.

Analysis — Segments outside of Big Bend National Park. Implementing alternative A would not result in any beneficial or adverse effect on archeological resources along the Rio Grande. Such resources not inside the park would not be protected, and any current impacts, both human-caused and natural, would continue.

Cumulative Effects. Some archeological resources along the Lower Canyons have been adversely affected by previous disturbance. Visitation, vandalism, and natural erosional processes have contributed to past archeological impacts. Current and foreseeable construction projects have the potential to impact archeological resources through ground disturbance. These adverse impacts would be long-term and minor. Because alternative A would not contribute to the impacts caused by other past, present, and reasonably foreseeable future actions, it would not contribute any project-related cumulative effects on archeological resources.

Conclusion. Alternative A would not affect archeological resources listed on the national register or those that are known to be eligible for listing.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that archeological resources and values would not be impaired by alternative A.

Section 106 Summary. In accordance with the regulations of the Advisory Council on Historic Preservation implementing section 106 of the National Historic Preservation Act, the no-action alternative would result in a determination of no effect. This is based on the fact that there are no

known properties listed on or eligible for listing on the national register.

Effects of Alternative B

Analysis — Segments in Big Bend National Park. The archeological resources in the park would continue to be protected according to existing laws and policies. The Big Bend *General Management Plan* prescribes preservation measures for the Daniels Ranch in the Rio Grande Village area and for the Castolon Historic District.

Cooperating with individual landowners to identify and protect significant cultural resources in the Lower Canyons, which would be emphasized in alternative B, could result in landowner agreements encouraging the stabilization of archeological sites that are well known among river users to prevent additional damage. Such stabilization, which would be based on the landowners' permission and available funding, would result in a long-term minor beneficial effect and no adverse effect on the resource.

Cumulative Effects. Some cultural resources in the Lower Canyons have been disturbed previously. Visitation, vandalism, and natural erosional processes also have contributed to adverse effects on archeological resources. Ground disturbance from current and foreseeable construction projects could adversely affect archeological resources. These long-term adverse effects would be minor to moderate. Alternative B would not contribute to the impacts of other past, present, and reasonably foreseeable future actions, and it would not include any project-related contribution to cumulative effects on cultural resources in the region.

Conclusion. Implementing alternative B would not adversely affect archeological resources, which would benefit from additional protective measures.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or

proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that archeological resources and values would not be impaired by alternative B.

Section 106 Summary. In accordance with the regulations of the Advisory Council on Historic Preservation on implementing section 106 of the National Historic Preservation Act, the preferred alternative would result in a determination of no adverse effect.

HISTORIC STRUCTURES

Methods of Assessing Effects

The intensity of effects on historic structures was rated as follows:

Negligible: The effect would be at the lowest levels of detection — barely perceptible and not measurable. For purposes of section 106, the determination would be *no adverse effect*.

Minor: Adverse Effect — the action would not affect the character-defining features of a structure listed on or eligible for listing on the National Register of Historic Places. For section 106 purposes, the determination would be *no adverse effect*. **Beneficial Effect** — there would be stabilization/preservation of character-defining features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* to maintain the existing integrity of a structure. For section 106 purposes, the determination would be *no adverse effect*.

Moderate: Adverse Effect — the action would alter a character-defining feature(s) of the structure or building but would not diminish the integrity of the resource to the extent that its eligibility for the National Register of Historic Places would be jeopardized. For section 106 purposes, the determination would be *adverse effect*. **Beneficial Effect** —

the structure or building would be rehabilitated in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* to make possible a compatible use of the property while preserving its character-defining features. For section 106 purposes, the determination would be *no adverse effect*.

Major : Adverse Effect — the action would alter a character-defining feature of the structure or building, diminishing its integrity to the extent that it no longer would be eligible for listing on the national register. For section 106 purposes, the determination would be *adverse effect*. **Beneficial Effect** — the structure would be restored in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* to accurately depict its form, features, and character as it appeared during its period of significance. For section 106 purposes, the determination would be *no adverse effect*.

Effects of Alternative A

Analysis — Segments in Big Bend National Park. This alternative would not adversely or beneficially affect historic structures along the Rio Grande. Existing conditions and situations would continue, and there would be no project-related ground disturbance with the potential to affect historic structures. The protection of historic resources in the park according to existing laws and policies would continue.

Analysis — Segments outside of Big Bend National Park. Implementing alternative A would have no effect, either adverse or beneficial, on historic structures on nonfederal land along the Rio Grande. Historic structures on nonfederal land would not be stabilized or protected, and the current long-term minor to moderate adverse impacts from visitation, vandalism, or natural processes would continue.

Cumulative Effects. Some historic structures along the Lower Canyons have been disturbed previously; possibly the disturbance occurred before the wild and scenic river was designated.

Visitation, vandalism, and natural erosional processes also contributed to earlier impacts. Other current and foreseeable construction projects have the potential to adversely affect historic resources through ground disturbance. These long-term adverse impacts would be minor to moderate. Implementing this alternative would not contribute directly to the cumulative impacts of other past, present, and reasonably foreseeable future actions, but the National Park Service would not take any action to reduce the effects already occurring on nonfederal land. There would be no additional project-related cumulative impacts on historic resources.

Conclusion. Alternative A would not result in any adverse effects on historic resources listed on or known to be eligible for the national register. The existing effects on nonfederal land would continue. The no-action alternative would not contribute to cumulative impacts on identified historic structures.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that no impairment of resources or values related to historic structures would result from alternative A.

Section 106 Summary. In accordance with the regulations of the Advisory Council on Historic Preservation on implementing section 106 of the National Historic Preservation Act, the no-action alternative would result in a determination of no adverse effect.

Effects of Alternative B

Analysis — Segments in Big Bend National Park. The protection of historic structures in the park according to existing laws and policies would continue under alternative B.

Analysis — Segments outside of Big Bend National Park. Implementing alternative B would involve NPS cooperation with individual landowners to identify and protect significant historic structures in the Lower Canyons. Landowner agreements could require NPS assistance with the stabilization or “hardening” of historic structures that are well known among river users so that visitors could enter the structures without additional damage, based on the landowner’s permission and available funding. The agreements also could involve NPS assistance with constructing trails and fences or rebuilding structures. Additional planning and compliance would be necessary for such projects. These actions would benefit the resources through long-term protection, and the actions of alternative B would result in no adverse effect on historic properties.

Cumulative Effects. Some historic structures along the Lower Canyons have been disturbed previously; possibly the disturbance occurred before the wild and scenic river was designated. Visitation, vandalism, and natural erosional processes also contributed to earlier impacts. Other current and foreseeable construction projects have the potential to adversely affect historic resources through ground disturbance. These long-term adverse impacts would be minor to moderate. Alternative B would include

actions intended to reduce the impacts already occurring, a beneficial contribution to the cumulative effects on historic resources.

Conclusion. Implementing alternative B would not adversely affect historic resources; rather, the resources could benefit from additional protective measures.

Impairment. There would be no major adverse impact on a resource or value whose conservation is: (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the river, (b) key to the natural or cultural integrity of the river or to opportunities for enjoyment of the river, or (c) identified as a goal in this *General Management Plan* or any other relevant NPS planning documents. Therefore, the National Park Service has determined that no impairment of resources or values related to historic structures would result from alternative B.

Section 106 Summary. In accordance with the regulations of the Advisory Council on Historic Preservation on implementing section 106 of the National Historic Preservation Act, alternative B would result in a determination of no adverse effect.

VISITOR EXPERIENCE AND UNDERSTANDING

METHODS OF ASSESSING EFFECTS

To estimate the effects of the actions in the alternatives on visitor experience and understanding, visitor surveys and personal observation of visitation patterns were used, combined with the assessment of what is available to visitors under current management. The effects on visitors' ability to experience a full range of resources were analyzed by examining resources mentioned in the river's significance statement.

The intensity of effects on the visitor experience and visitor understanding was rated as follows:

Negligible: The effect would be barely detectable or it would affect few visitors.

Minor: The effect would be slight but detectable and/or it would affect some visitors.

Moderate: The effect would be readily apparent and/or it would affect many visitors.

Major : The effect would be severely adverse or exceptionally beneficial and/or it would affect the majority of the visitors.

EFFECTS OF ALTERNATIVE A

Analysis — Segments in Big Bend National Park

Under this no-action alternative, traditional uses of the wild and scenic river would not be affected, and the existing limits and regulations on river use would continue. NPS efforts toward visitor understanding (interpretation and education) would continue, but the National Park Service would not make any provisions for visitors' understanding of river resources. The effects on the visitor experience would be the continuation of minor short-term adverse impacts from overcrowding during periods of high river use. There would be no effect on visitor understanding.

Analysis — Segments outside of Big Bend National Park

The existing limits on commercial river services and on private boaters in the Lower Canyons would continue. This could result in large numbers of people affecting the quality of visitors' experience on popular weekends. At the same time, boaters arriving at the river "on the spur of the moment" would be allowed to put in. Visitors engaging in other traditional uses would not be affected.

The default 0.25-mile boundary remaining in effect could influence landowners to close their lands to any public use. This would result in a long-term moderate adverse impact on the visitor experience.

Cumulative Effects

The location of Big Bend in a remote region of the United States leads to the park and the river being primary destinations for visitors, because visitors do not stop there on their way to somewhere else. Reduced water levels have caused some stretches of the river to be inaccessible for certain craft or have made it necessary to portage around exposed rocks. This adversely affects some visitors' experience. The forthcoming Big Bend *General Management Plan* is not likely to necessitate any changes in the management of visitor use that would affect river use patterns or opportunities. State and county tourism bureaus have been promoting the Big Bend region and probably would continue, which would attract more visitors. Visitors to the river can be divided into river runners and others. This alternative would not affect the numbers of either type of visitor and so would not contribute to past, present, or future cumulative effects on visitation in the region.

Conclusion

Alternative A could result in long-term moderate adverse effects on the visitor experience and visitor understanding if Lower Canyons landowners closed their land to public use.

EFFECTS OF ALTERNATIVE B

Analysis — Segments in and outside of Big Bend National Park

Alternative B would include limits and restrictions on commercial river operators and private boaters all along the river. This would preserve a high-quality experience, but river visitors might have to plan ahead and obtain a permit early during peak use periods. This could result in an adverse impact on boaters arriving on the spur of the moment during peak times, who would not be allowed to put in. Visitors engaging in other traditional uses would not be affected. Future public access to the Lower Canyons would be virtually guaranteed by this alternative.

The quality of experience for boaters on the river would be continued or enhanced by preventing overcrowding during peak times. Improved interpretation would increase the likelihood of river visitors understanding the resource, a long-term beneficial effect.

Cumulative Effects

As was mentioned above, the location of Big Bend in a remote region of the United States

causes the park and the river to be primary destinations for visitors, because visitors do not stop there on their way to other attractions. Reduced water levels have made some stretches of the Rio Grande inaccessible for certain craft or have caused visitors to portage around exposed rocks, adversely affecting some visitors' experience.

The forthcoming Big Bend *General Management Plan* is not likely to necessitate any changes in the management of visitor use that would affect river use patterns or opportunities. Development along the shores and river use by landowners (which is not regulated) could adversely affect the visitor experience. State and county tourism bureaus have been promoting the Big Bend region and probably would continue, which would attract more visitors.

Alternative B would affect the potential number of future river runners; this effect could be adverse to some visitors and beneficial to others. It would make a negligible contribution to past, present, or future cumulative effects on visitation in the region.

Conclusion

Alternative B would result in a long-term minor beneficial effect on visitor understanding and the visitor experience because visitors would have opportunities for a high-quality recreational experience and increased understanding of the river ecosystem.

EFFECTS ON SOCIAL CONDITIONS — BOUNDARY AND NONFEDERAL LANDS

METHODS OF ASSESSING EFFECTS

Some of the issues and concerns covered by this impact topic are the effects on nonfederal landowners, traditional land uses outside park boundaries, and possible conflicts between the preferred alternative and local, state, or Indian tribal land use plans, policies, or controls.

The intensity of effects on the boundary and nonfederal lands was rated as follows:

Negligible: The effect would be barely detectable or it would not affect private landowners or agencies that own adjacent lands.

Minor: The effect would be slight but detectable and/or it would affect a minority of private landowners or agencies that own adjacent lands.

Moderate: The effect would be readily apparent and/or it would affect many private landowners or agencies that own adjacent lands.

Major : The effect would be severely adverse or exceptionally beneficial and/or it would affect the majority of private landowners or agencies that own adjacent lands.

EFFECTS OF ALTERNATIVE A

Analysis — Segments in Big Bend National Park

The boundary of the Rio Grande Wild and Scenic River would not change under the no-action alternative from the current default boundary of 0.25-mile from the ordinary high-water mark on the U.S. side. This equates to 160 acres per river mile. Alternative A would not affect the current management of the river or of federally owned lands within the river corridor.

Analysis — Segments outside of Big Bend National Park

The interim boundary for the Rio Grande Wild and Scenic River sometimes exceeds what is necessary to protect the identified outstandingly remarkable values. Landowners may perceive this to be an adverse effect, but since the National Park Service would not use eminent domain to acquire land and has no regulatory authority over these lands, there would be no effect on landowners. This has been demonstrated over the past 25 years since designation. Alternative A would result in long-term minor adverse impacts on nonfederal landowners.

Existing Texas state law (the Recreation Use Statute; see appendix D) significantly reduces the liability of landowners for people recreating on their lands; this benefits landowners.

Cumulative Effects

The state of Texas has little public land compared with other Western states. Big Bend National Park and other parks and forests were purchased from private landowners by the state or federal government, and a fear of the federal government “taking” private land is widespread.

There has been local resistance and some animosity to the designation of the Rio Grande Wild and Scenic River since the 1970s. This no-action alternative would not encourage dialog between the National Park Service and riverside landowners. Therefore, it would be a component in the cumulative perceived and real long-term adverse impacts on nonfederal landowners.

Conclusion

Implementing alternative A would result in long-term minor adverse effects on the interests of nonfederal landowners .

EFFECTS OF ALTERNATIVE B

Analysis — Segments in Big Bend National Park

Under alternative B the boundary would be located on the United States shore extending to from the ordinary high water mark, and it could extend to the farthest sight distance (for example, a canyon rim) up to a maximum of 0.25 mile from ordinary high water mark, depending on the specific outstandingly remarkable values present.

Analysis — Segments outside of Big Bend National Park

NPS consultation with landowners about the appropriate location of boundaries to protect outstandingly remarkable values would help landowners to understand the reasons for the boundary location. Landowners could influence the boundary location by giving site-specific information that might not be available to the National Park Service. Accepting the boundary on their lands would encourage landowners to enter into cooperative agreements with the National Park Service to protect resources and relieve landowner concerns that the federal government might acquire their lands against their wishes or that regulations might be imposed upon them. A clause in each agreement would prohibit the government from using condemnation to acquire additional property so long as the agreement remained in place. Having such agreements would result in long-term moderate beneficial effects on private landowners, and the federal government would receive long-term moderate benefits from establishing a trustful and cooperative relationship with the landowners.

The designation of the additional upstream segment would curtail the potential for condemnation of nonfederal property by placing more than 50% of the river in state and federal ownership.

This would give nonfederal landowners more peace of mind, a long-term beneficial effect. At the same time, the alternative would result in long-term beneficial effects for the government from the trust and cooperation of landowners.

In addition to the waiver that would be included in the mandatory boating permits, existing Texas state law (the Recreation Use Statute — see appendix D) would significantly reduce landowners' liability for people recreating on their lands. This would be a long-term beneficial effect.

Cumulative Effects

As was mentioned in alternative A, the state of Texas has little public land compared with other Western states, and there has been local resistance and some animosity to the designation of the Rio Grande Wild and Scenic River since the 1970s. Through emphasis on benefits from the landowner agreements, alternative B would reduce the perceived cumulative adverse impacts on nonfederal landowners, which have resulted in mistrust and misunderstandings.

Conclusion

Implementing alternative B, the preferred alternative, would result in long-term moderate beneficial effects on private landowners and would improve the protection of the outstandingly remarkable values for which the river was designated a wild and scenic river.

EFFECTS ON SOCIOECONOMIC CONDITIONS

METHODS OF ASSESSING EFFECTS

Issues were identified through the scoping process. Concerns covered by this section are the effects on nearby towns or agencies and the economic contribution of the river to local and regional economies.

The intensity of effects on socioeconomic conditions was rated as follows:

Negligible: The effect would be barely detectable, or it would not affect the local economy.

Minor: The effect would be slight but detectable, and/or it would slightly affect the local economy.

Moderate: The effect would be readily apparent, and it would have a pronounced effect on the local economy and a slight effect on the regional economy.

Major : The effect would be severely adverse or exceptionally beneficial, and it would affect the local and regional economy.

EFFECTS OF ALTERNATIVE A

Analysis — Segments in Big Bend National Park

The no-action alternative would not change the current management of the Rio Grande Wild and Scenic River; it would continue to be managed as at present. There would be continuing recreation access and use, along with continued protection of the river values and resources. The effects are described following the “outside of the park” segment.

Analysis — Segments outside of Big Bend National Park

Whether the current recreation access would continue would be up to individual landowners.

Opportunities for landowners to charge fees for river access (takeouts on private land) would continue.

The selection of this alternative would not result in the generation of new socioeconomic benefits or costs such as changes in direct government employment or indirect private sector employment. No additional revenue would result from increased visitor spending beyond that already anticipated in the baseline. There would be no significant changes other than those in the annual budget process. Implementing this alternative would result in the loss of opportunities for local and regional economic enhancement.

Cumulative Effects

If alternative A was selected, there would be no change in socioeconomic benefits or costs at either the local or regional cumulative level. Implementing this alternative for the management of the Rio Grande Wild and Scenic River would be a separate action from any changes in the future management at Big Bend National Park. Adopting the no-action alternative would not contribute to any cumulative effects.

Conclusion

No adverse or beneficial socioeconomic effects would result from implementing alternative A.

EFFECTS OF ALTERNATIVE B

Analysis — Segments in and outside of Big Bend National Park

River recreation and the protection of river resources would continue under alternative B. More river miles would be added to the Rio Grande Wild and Scenic River. Although no land acquisition is included in this preferred alternative, lands could be acquired from willing sellers if they met certain criteria, and the National Park Service would pursue agreements

with private landowners about protecting outstandingly remarkable values.

Three full-time equivalent federal employees would be added to the local workforce to manage the added responsibilities under this alternative. The total recreational use levels downstream from Big Bend National Park would be limited to a level 50%–100% greater than the year 2000 use in the Lower Canyons, consistent with use rates over the past three years. Based on these forecast changes, it is estimated that the implementation of this alternative would result in increased sales in the region totaling about \$662,000, total increased tax revenues of about \$62,000, and the creation of about 20 new jobs.

The local and regional economy would receive minor long-term benefits from improvements in both permanent and temporary employment opportunities and revenues as the planned management programs were implemented. For both the local and regional economy, there would be long-term beneficial effects, as well as international benefits from indirect enhanced economic activity in the Mexican state of Chihuahua.

Cumulative Effects

The economy in the Big Bend region is primarily affected by actions and influences beyond the control of the National Park Service, including land values, cattle prices, and the job market. Implementing the preferred alternative is considered with changes in the future management, if any, of Big Bend National Park. Thus, the actions prescribed in this plan would have cumulative effects with the decisions made in the Big Bend *General Management Plan* and other regional and local planning efforts. Those other planning efforts might result in benefits to the local economy. Adopting this alternative would contribute beneficial cumulative effects to the local and regional economy.

Conclusion

Alternative B would result in long-term minor beneficial effects on the local and regional economy.

PARTNERSHIPS AND INTERNATIONAL COOPERATION

METHODS OF ASSESSING EFFECTS

In this impact topic, the effects that could be expected for private organizations are analyzed, as are the effects on federal and state agencies and Mexican agencies that would cooperate in managing the Rio Grande Wild and Scenic River.

The intensity of effects on partnerships and international cooperation was rated as follows:

Negligible: The effect would be barely detectable, or it would not affect cooperating governments and agencies.

Minor: The effect would be slight but detectable, and/or it would affect a minority of cooperating governments and agencies.

Moderate: The effect would be readily apparent, and/or it would affect many cooperating governments and agencies.

Major : The effect would be severely adverse or exceptionally beneficial, and/or it would affect the majority of cooperating governments and agencies.

EFFECTS OF ALTERNATIVE A

Analysis — Segments in Big Bend National Park

Alternative A would not involve any cooperative relationships with other agencies or the government of Mexico. This would result a long-term moderate adverse effect on partnerships.

Analysis — Segments outside of Big Bend National Park

If the no-action alternative was selected, the Rio Grande Partnership Team would be disbanded, and there would be no formal consultation or coordination with the owners or managers of

adjacent property. This would result in long-term moderate adverse effects on partnerships

Analysis — Trans-boundary Issues

The centerline of the main channel of the Rio Grande is the international boundary with Mexico. This alternative would not affect any aspect of the North American Free Trade Agreement (NAFTA) of 1993, and there would be no breach of the environmental protection regulations and guidelines that were added as a result of supplemental agreements signed in 1993.

Cumulative Effects

The need for cooperative management of the river, adjacent land uses, and natural resources has been recognized for many years. This need to cooperate has been identified at several levels between U.S. federal agencies, local governments and organizations, and the government of Mexico. Formal international cooperation exists through the boundary and water treaties. Recent periods of drought and low river flow have brought to the forefront the need for continued cooperation. In general, cooperation provides long-term benefits. This alternative would contribute adversely to the cumulative effects on interagency and international cooperation.

Conclusion

The fact that alternative A would not entail formal coordination with river users, local governments, or owners of adjacent land would cause a moderate long-term adverse effect on cooperative river management efforts. This alternative would not affect trans-boundary issues.

EFFECTS OF ALTERNATIVE B

Analysis — Segments in and outside of Big Bend National Park

In the preferred alternative, working relationships with nonfederal landowners, local govern-

ments, state agencies, and river users would be expanded or enhanced. The purpose of these relationships would be to work toward achieving common river management goals, to build a sense of trust and cooperation, and to share information. This would benefit all parties involved and, ultimately, the river.

Current treaties and agreements with the Mexican government would not be affected by alternative B. New agreements would be encouraged for the purposes of joint management and protection of the river ecosystem.

Cooperative management of the river would benefit from the continuation of the Rio Grande Partnership Team and from partnerships with individual landowners through the landowner agreements.

Analysis — Trans-boundary Issues

The centerline of the Rio Grande is the international boundary with Mexico. The trans-boundary effects of alternative B would be beneficial because binational cooperation and consultation would be encouraged under this alternative. There would be no effect on any

aspect of the North American Free Trade Agreement of 1993, and there would be no breach of the environmental protection regulations and guidelines that were added by supplemental agreements to the 1993 agreement.

Cumulative Effects

The actions of alternative B would support the need for cooperative management mentioned in the discussion of alternative A. This need has been identified by local governments, federal agencies, and the Mexican government and exists on an international level through treaties. This alternative would contribute a beneficial cumulative effect on interagency and international cooperation.

Conclusion

Alternative B, the preferred alternative, would result in moderate long-term beneficial effects on interagency and international cooperative river management. It would create minor beneficial effects on trans-boundary issues.

REQUIRED ANALYSES

RELATIONSHIPS OF SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

Current federal wild and scenic river management activities would continue under alternative A, the no-action alternative. The management of federally owned land would be governed by federal mandates, but alternative A would involve no cooperation with private landowners to protect scenic, natural, and cultural resources along the river. Short-term economic activity would remain as at present, but long-term productivity would be negligibly affected.

Alternative B would enhance the management and preservation programs, resulting in short-term and long-term beneficial effects on natural and cultural resources, the visitor experience, and scenic values. Restoring natural processes along parts of the Rio Grande would enhance the long-term productivity of the river's biological resources. Alternative B also would result in increased employment in the area.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

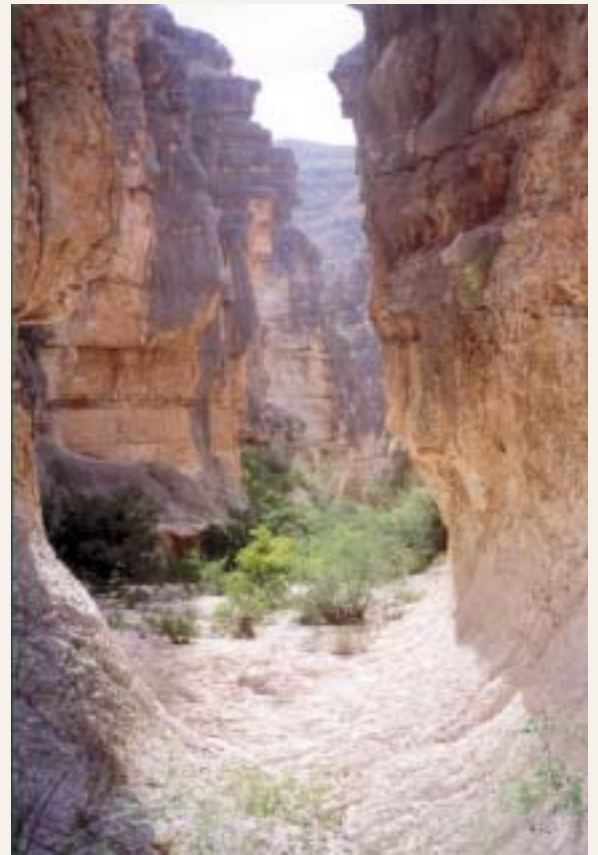
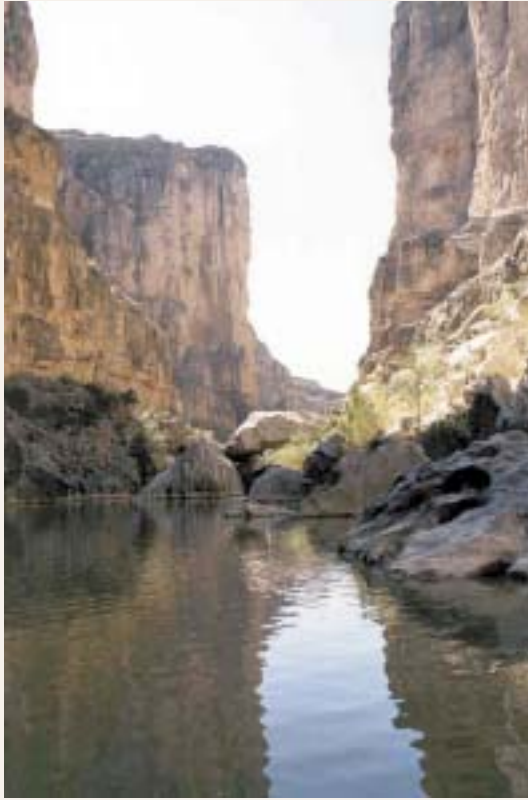
Because alternative A would not change the current management of the wild and scenic river, it

would not create any new irreversible and irretrievable commitments of resources. Alternative B would result in irreversible and irretrievable commitments of funds expended for river management and salaries. This expenditure would be about \$250,000 per year. No other commitments of resources are planned. However, if nonfederal land was acquired from a willing seller at some point during the life of the plan, an unknown amount of funds could be committed for that action.

UNAVOIDABLE ADVERSE IMPACTS

No unavoidable or major adverse effects on natural or cultural resources would be expected under either the no-action alternative or the preferred alternative. Some visitors might consider the imposition of use restrictions in the Lower Canyons an unavoidable adverse effect.

Consultation and Coordination



THE PLANNING PROCESS

This *General Management Plan / Environmental Impact Statement* was developed according to the NPS general management planning process as described in Director's Order 2 (DO-2), *Park Planning*. By following this process, four fundamental values are ensured:

- ***A logical, trackable rationale*** — Decision-making can be tracked from broad conceptual goals to specific actions.
- ***Analysis*** — Decisions are based on scientific and scholarly data and analyses and take into account the surrounding region.
- ***Public involvement*** — Decisions are based on consideration of the interest among members of the public in their national parks as part of their national heritage, cultural traditions, and community surroundings.
- ***Accountability*** — Managers are held accountable for achieving the goals agreed to in plans.

A general management plan constitutes the highest level of park planning. It focuses on why the park unit was established and what resource conditions and visitor experiences should be

achieved and maintained over time. This process is made up of the following key steps:

- a. Reconfirm park purpose, significance and mission goals.
- b. Acknowledge special mandates and commitments.
- c. Acknowledge servicewide laws and policies.
- d. Identify needs for management prescriptions.
- e. Analyze resources.
- f. Describe the range of potential management prescriptions.
- g. Define alternative concepts.
- h. Use management zoning to apply alternative concepts to park resources.
- i. Describe environmental impacts of the alternatives.
- j. Estimate the relative costs of the alternatives.
- k. Select a preferred alternative.

INVOLVEMENT OF OTHER AGENCIES AND THE PUBLIC

HOW THIS PLAN WAS DEVELOPED

A notice of intent to prepare an environmental impact statement was published in the *Federal Register* on May 3, 2000, to officially announce the planning process. After that, an amended notice of intent was published on April 9, 2001.

The first opportunity for the public to become involved in planning for the *General Management Plan* for Big Bend National Park and this *General Management Plan / Environmental Impact Statement* for the Rio Grande Wild and Scenic River was in May 2000. The public was notified of scoping meetings through press releases and the first planning newsletter. The meetings gave the National Park Service an opportunity to introduce the public to the planning process and solicit comments.

Sixty-three people signed in at the meetings in Study Butte, Alpine, Sanderson, and Austin, Texas. Several other people attended the meetings but did not sign in. Proposals to establish a citizen-based partnership team to ensure broader public participation in the planning garnered tremendous support from the public.

Besides establishing the Rio Grande Wild and Scenic River Partnership Team to represent stakeholders, the National Park Service offered many opportunities for public involvement. Newsletters were distributed in the spring of 2000 and in February and May 2001. Each offered opportunities for feedback on issues, concerns, and alternatives. In addition, notes from meetings of the partnership team were posted on the Rio Grande Wild and Scenic River Web site.

The newsletters were mailed to people who expressed an interest in the planning effort. The National Park Service received 25 comments on the comment forms included in these mailings, as well as by telephone and e-mail. All comments received during the scoping process have been considered and will remain in the administrative record throughout the planning process.

A summary and list of the public comments are available to the public and can be obtained from the superintendent of Big Bend National Park.

The National Park Service arranged a “landowners’ workshop” for February 2001 so that owners of private land could present their concerns and work on some common issues. More than 80 people attended that meeting.

Public meetings were conducted in June 2001 in San Antonio, Alpine, and Study Butte to inform the public of the status of the planning effort and to receive comments on planning issues and outstandingly remarkable values.

AMERICAN INDIAN INVOLVEMENT

Throughout the planning process, the team has consulted with American Indian interests. All the newsletters were sent to tribes identified as being affiliated with the park, along with a letter inviting them to participate in the planning process. Tribal leaders also were contacted personally during the process.

THE PARTNERSHIP TEAM

The heart of this planning effort has been the Rio Grande Wild and Scenic River Partnership Team. The team is composed of federal, state, and county officials, as well as representatives from private landowners, commercial outfitters, recreational users, and conservation organizations. The team’s goal is to ensure that all interested parties will have a voice in the National Park Service’s efforts, to help write and implement a general management plan for the Rio Grande Wild and Scenic River, and to explore cooperative management opportunities. Partnership team meetings, which are held several times a year, are open to the public. A chronology of previous meetings follows:

August 2000 — The first meeting helped establish a working relationship among the team members. Issues discussed included designation

history, public involvement strategies, the boundary, and river-related issues.

October 2000 — Information was presented about the 1981 “Final General Management Plan / Development Concept Plan” (never implemented). Also discussed were general river management principles, outstandingly remarkable values, and public outreach. Agreements were reached on the need for a landowners’ workshop and the process for determining the river’s outstandingly remarkable values.

December 2000 — Topics discussed were the boundary of the wild and scenic river and its effects on private lands, plans for a landowners’ workshop, determining outstandingly remarkable values, and revising the project work plan.

February 2001 — A landowners’ workshop attended by more than 70 people gave private landowners an opportunity to present their concerns and to work on some common issues. The expectations of the National Park Service and private landowners were discussed. The agency, the landowners, and Rio Grande Partnership Team representatives agreed to the concepts for the desired future conditions for the Rio Grande Wild and Scenic River. The workshop also laid the foundation for a cooperative relationship for the rest of the river planning process.

June 2001 — Public meetings sponsored by the Rio Grande Partnership Team and the National Park Service were conducted in San Antonio, Alpine, and Study Butte, Texas, to inform the public about the status of the planning effort and to receive comments on planning issues and outstandingly remarkable values.

Later in June, at a partnership team meeting, representatives reviewed comments from the

public meetings and discussed concepts for landowner agreements and for extending wild and scenic river designation through the rest of Big Bend National Park.

February 2002 — Topics discussed were recreational liability, mapping, boundaries, the La Linda Bridge initiative, landowners’ agreements, and Presidio water rights.

REVIEW AND COMMENT PERIOD

A 60-day public review and comment period will follow the publication of this draft document. The National Park Service also will conduct public meetings in local communities, as well as one in east Texas, to provide more opportunities for interested parties to comment on the draft plan. The date, time, and location of each meeting will be announced through regional and local media and on the Big Bend National Park’s Internet Web site. Comments will be accepted at these meetings and by mail, telephone, or e-mail.

PREPARING A FINAL PLAN

After the comment period ends, the planning team will review all the comments received by the closing date. After the comments are reviewed for content, any warranted revisions will be made to the plan to address substantive comments. A final plan will then be prepared, in which the National Park Service will respond to substantive comments. A minimum of 30 days after the final plan is published, the National Park Service will publish a record of decision in the *Federal Register*, and the plan will then be implemented.

CONSULTATION

CULTURAL RESOURCES

In accordance with section IV of the 1995 programmatic agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, certain undertakings require only internal National Park Service review for section 106 of the National Historic Preservation Act, as shown below.

Actions that are programmatically excluded from section 106 review outside the National Park Service	
Exclusion IV.B.1	Preservation or maintenance actions intended to protect and stabilize historic and prehistoric structures within the river corridor
Exclusion IV.B.4	Actions involving inventorying, monitoring, researching, interpreting, and protecting cultural resources

Other undertakings require standard section 106 review in accordance with 36 CFR 800, and in those instances the National Park Service consults as necessary with the state historic preservation officer, the Advisory Council on Historic Preservation, tribal officials, and other interested parties.

ENDANGERED SPECIES

In accordance with section 7 of the Endangered Species Act, consultation with the U.S. Fish and Wildlife Service was initiated at the beginning of this planning effort.

AMERICAN INDIANS

Letters were sent to the following American Indian groups on May 15, 2000, to invite their participation in the planning process:

Apache Tribe of Oklahoma
Blackfeet Tribe
Caddo Indian Tribe of Oklahoma
Cheyenne-Arapaho Tribe of Oklahoma
Comanche Indian Tribe
Fort Sill Apache Tribe of Oklahoma
Jicarilla Apache Tribe
Kickapoo Traditional Tribe of Texas
Kiowa Indian Tribe of Oklahoma
Mescalero Apache Tribe

These tribes were briefed on the scope of the planning project by newsletter, and followup telephone calls were made to solicit comments. The tribes also will have an opportunity to review and comment on this draft plan.

AGENCIES AND ORGANIZATIONS TO WHICH THIS DOCUMENT WAS SENT

Federal Agencies

Advisory Council on Historic Preservation
International Boundary and Water Commission
U.S. Army Corps of Engineers
U.S. Department of Agriculture
 Forest Service
 Natural Resources Conservation Service
U.S. Department of the Interior
 U.S. Fish and Wildlife Service
 U.S. Geological Survey
U.S. Environmental Protection Agency

Mexican Government

Patricio Martinez
Palacio de Gobierno
Chihuahua, Chihuahua 25000
Mexico

Rogelio Montemayor
Palacio de Gobierno
Saltillo, Coahuila 25000
Mexico

Mexican Protected Areas

Julio Carrera, Maderas del Carmen
Apdo. Postal 486
Saltillo, Coahuila 2500
Mexico

Pablo Dominguez, Canon de Santa Elena
Col. San Felipe
Chihuahua, Chihuahua 31240
Mexico

U.S. Senators and Representatives

Senator Phil Gramm
Senator Kay Bailey Hutchison
Senator Feinstein
U.S. Representative Henry Bonilla
U.S. Representative Gene Green
U.S. Representative Silvestre Reyes

Texas State Agencies

Texas Natural Resources Conservation
 Commission

Texas Parks and Wildlife
 Black Gap Wildlife Management Area
 Endangered Species Branch
 Texas Historical Commission
 Texas State Historic Preservation Office

Texas State Officials

Governor Rick Perry
State Representative Pete Gallego
State Senator Frank Madla

Local Governments

Brewster County Commission
Terrell County Commission
City of Amarillo
City of Brownsville
City of Pecos

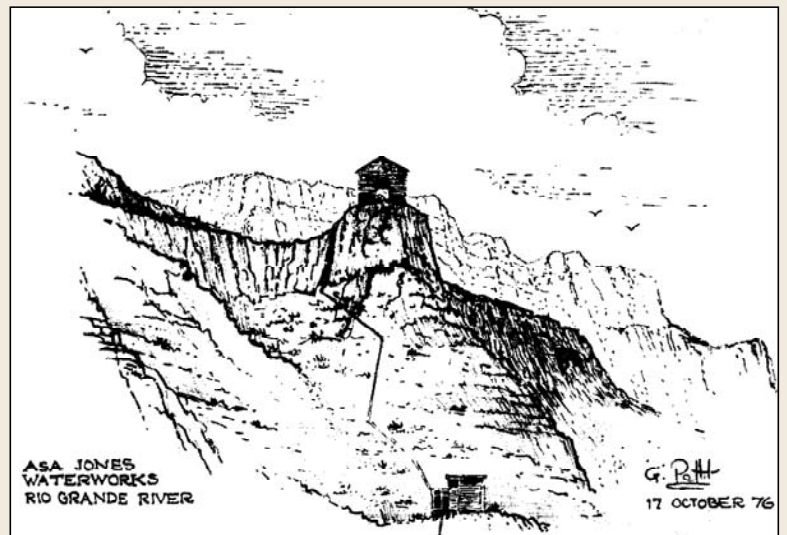
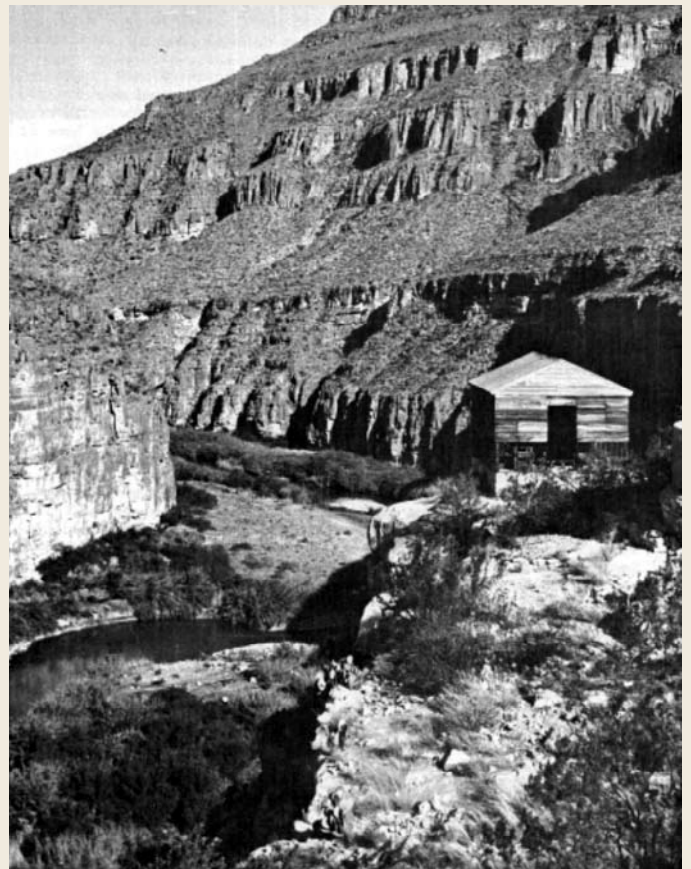
Organizations and Businesses

Abilene Reporter-News
Alpine Commerce
The Alpine Avalanche
Alpine Observer
American Whitewater Association
Andy White Ranches
Associated Press
Audubon Texas
Austin American-Statesman
Balmorhea Commerce
Barton Warnock Center
The Battalion
Big Bend Motor Inn/Mission Lodge
Big Bend Natural History Association
Big Bend River Tours
The Big Bend Sentinel
Big Spring Commerce
Big Spring Herald
Brownsville
Brownwood Bulletin
Bullis Gap Ranch and Paradise Valley Ranch
Center for Environmental Resource
Management
Chevron USA
Chisos Mountain Lodge
The Conservation Fund
The Conservationists' Wilderness and Wild
 River Committee
Conservationists' Wild River Committee

Organizations and Businesses (continued)

Continental Divide Trail Society
 Crane Chamber of Commerce
The Crane News
Dallas Morning News
 Davis Mountains Trans Pecos Heritage Association
 Del Rio Commerce
Del Rio News Herald
The Desert Candle Newspaper
 Desert Sports
Eagle Pass News-Guide
El Paso Times
 Far Flung Adventures
 Forever Resorts, LCC
 Fort Davis Chamber of Commerce
 Fort Stockton Chamber of Commerce
Fort Stockton Pioneer
Fort Worth Newsletter
Fort Worth Star Telegram
 The Gage Hotel
Galveston Daily News
Houston Chronicle
 Indian Creek Landowners Association
The International Presidio
 Isleta del Sur Pueblo
Jeff Davis County Mountain Dispatch
 Judge Roy Bean Center
 Kent State University
 KFST Radio
 KLKE and KDLK Radio
 KMID-TV Channel 2
 KVLFF Radio
 KOSA-TV
 KVLFF Radio
 KWES-News West 9
 KWES-TV
 KWMC Radio
The Lajitas Sun
 Lajitas Trading Post
Laredo Morning Times
Lubbock Avalanche -Journal
 Marathon Commerce
 Maria Chamber of Commerce
 Midland Chamber of Commerce
Midland Reporter-Telegram
 Mission Chamber of Commerce

National Parks and Conservation Association
 National Park Concessions, Inc.
 Northern Arizona University
 Northwestern University
Odessa American
 Odessa Convention & Visitors Bureau
 Paradise Valley
 Pecos Chamber of Commerce
Pecos Enterprise
 Pitcock Ranch
 Presidio Chamber of Commerce
 Randolph Company
 Rio Grande Adventures
Rio Grande Sun
 Riskind Natural Resources
 Rhodes Welding
 San Angelo Commerce
San Angelo Standard-Times
San Antonio Express-News
 Sanderson Chamber of Commerce
San Marcos Record
 Sanderson River Ranch
Santa Fe New Mexican
 Sierra Club
Standard/Radio Post
 Study Butte Store
 Sul Ross University
The Sweetwater Reporter
Terlingua Moon
 Terlingua Ranch Lodge
Terrell County News Leader
 Terrell Visitor Bureau
 Texas Audubon Society
 Texas Explorers Club
 Texas River Adventures
 Texas Rivers Protection Association
 TOCNR
 University of Northern Colorado
 University of Texas-El Paso
 Uvalde Commerce
 Valley Star
The Van Horn Advocate
 Voyageur Outward Bound
Waco Tribune-Herald
 World Wildlife Fund



Original art by George Pettit used with permission of the artist.

APPENDIX A: LEGISLATION

The National Parks and Recreation Act

Public Law 95-625

November 10, 1978

provides for the addition of the Rio Grande segment

ADDITION OF RIO GRANDE SEGMENT

SEC. 702. Section 3(a) of the Wild and Scenic Rivers Act is amended by adding the following new paragraph at the end thereof:

“(17) RIO GRANDE, TEXAS.—The segment on the United States side of the river from river mile 842.3 above Mariscal Canyon downstream to river mile 651.1 at the Terrell-Val Verde County line; to be administered by the Secretary of the Interior. The Secretary shall, within two years after the date of enactment of this paragraph, take such action with respect to the segment referred to in this paragraph as is provided for under subsection (b). The action required by such subsection (b) shall be undertaken by the Secretary, after consultation with the United States Commissioner, International Boundary and Water Commission, United States and Mexico, and appropriate officials of the State of Texas and its political subdivisions. The development plan required by subsection (b) shall be construed to be a general management plan only for the United States side of the river and such plan shall include, but not be limited to, the establishment of a detailed boundary which shall include an average of not more than 160 acres per mile. Nothing in this Act shall be construed to be in conflict with—

“(A) the commitments or agreements of the United States made by or in pursuance of the treaty between the United States and Mexico regarding the utilization of the Colorado and Tijuana Rivers and of the Rio Grande, signed at Washington, February 1944 (59 Stat. 1219), or

“(B) the treaty between the United States and Mexico regarding maintenance of the Rio Grande and Colorado River as the international boundary between the United States and Mexico, signed November 23, 1970.

For purposes of carrying out the provisions of this Act with respect to the river designated by this paragraph, there are authorized to be appropriated such sums as may be necessary, but not more than \$1,650,000 for the acquisition of lands and interests in lands and not more than \$1,800,000 for development.”.

APPENDIX B: CORRESPONDENCE FROM U.S. FISH AND WILDLIFE SERVICE ABOUT SENSITIVE SPECIES



FISH AND WILDLIFE SERVICE
Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, Texas 78758

JUL - 6 2000

2-15-00-I-868

Mary Magee (DSC-PDS-RP)
National Park Service, Denver Service Center
Box 25287
Denver, Colorado 80225

Dear Ms. Magee:

This responds to your June 5, 2000 letter, requesting a current list of federally listed or proposed threatened and endangered species and mapped locations of known populations and Critical Habitat that may occur in Terrell and Brewster counties, Texas. It is our understanding this information will assist in the development of a general management, river management planning, and wilderness study to prescribe resource conditions and visitor experiences to be achieved and maintained at Big Bend National Park and Rio Grande Wild and Scenic River over time.

Enclosed is the list of species you requested and a copy of "Threatened and Endangered Species of Texas (Revised June 1995)," a publication that contains general information about the life histories, habitats, and distribution of the federally listed species in Texas. No federally designated Critical Habitat currently exists in Terrell or Brewster counties and, although we are unable to provide you with mapped locations of known listed species' populations, we look forward to working with you to determine when species surveys would be appropriate in an effort to avoid adverse impacts to federally listed or proposed species and their habitats.

We appreciate the opportunity to comment on the proposed management plans and your concern for endangered species and fish and wildlife resources. We look forward to assisting you with this effort and reviewing the Draft Environmental Impact Statement. If we can be of further assistance, please contact Dianne Lee at 512/490-0057, extension 231.

Sincerely,

David C. Frederick
Supervisor

Enclosures

Federally Listed as Threatened and Endangered Species of Texas
March 28, 2000

DISCLAIMER

This County list is based on information available to the U.S. Fish and Wildlife Service at the time of preparation, date on page 1. This list is subject to change, without notice, as new biological information is gathered and should not be used as the sole source for identifying species that may be impacted by a project.

Edwards Aquifer species: (Edwards Aquifer County) refers to those six counties within the Edwards Aquifer region. The Edwards Aquifer underlies portions of Kinney, Uvalde, Medina, Bexar, Hays, and Comal Counties (Texas). The Service has expressed concern that the combined current level of water withdrawal for all consumers from the Edwards Aquifer adversely affects aquifer-dependent species located at Comal and San Marcos springs during, low flows. Deterioration of water quality and/or water withdrawal from the Edwards Aquifer may adversely affect eight federally-listed species.

Comal Springs riffle beetle	(E)	<i>Heterelmis comalensis</i>
Comal Springs thyopid beetle	(E)	<i>Stygoparnus comalensis</i>
Fountain darter	(E w/CH)	<i>Etheostoma fonti cola</i>
Peck's cave amphipod	(E)	<i>Stygobromus (=Stygonectes) pecki</i>
San Marcos gambusia	(E w/CH)	<i>Gambusia georgei</i>
Texas wild-rice	(E w/CH)	<i>Zizania texana</i>
Texas blind salamander	(E)	<i>Typhlomolge rathbuni</i>
San Marcos salamander	(T ?w/CH)	<i>Eurycea nana</i>

*The Barton Springs salamander is found in Travis County but may be affected by activities within the Barton Springs Segment of the Edwards Aquifer, which includes portions of Northern Hays County.

Migratory Species Common to many or all Counties: Species listed specifically in a county have confirmed sightings. If a species is not listed they may occur as migrants in those counties.

Least tern	(E)	<i>Sterna antillarum</i>
Whooping crane	(E w/CH)	<i>Grus americana</i>
Bald eagle	(T)	<i>Haliaeetus leucocephalus</i>
Piping plover	(T)	<i>Charadrius melodus</i>
Loggerhead shrike	(SOC)	<i>Lanius ludovicianus</i>
White-faced ibis	(SOC)	<i>Plegadis chihi</i>
Brewster County		
Black-capped vireo	(E)	<i>Vireo atricapillus</i>
Golden-cheeked warbler	(E)	<i>Dendroica chrysoparia</i>
Northern aplomado falcon	(E)	<i>Falco femoralis septentrionalis</i>
Southwestern willow flycatcher	(Et)	<i>Empidonax traillii extimus</i>
Whooping crane	(E w/CH)	<i>Grus americana</i>
Mexican long-nosed bat	(E)	<i>Leptonycteris nivalis</i>
Big Bend gambusia	(E)	<i>Gambusia gaigei</i>
Davis' green pitaya	(E)	<i>Echinocereus viridiflorus</i> var. <i>davisii</i>
Nellie cory cactus	(E)	<i>Coryphantha (=Mammillaria) minima</i>
Terlingua Creek cats-eye	(E)	<i>Cryptantha crassipes</i>
Bunched cory cactus	(E)	<i>Coryphantha ramillosa</i>
Chisos Mountain cactus	(T)	<i>Echinocereus chisoensis</i> var. <i>chisoensis</i>
Hinckley's oak	(T)	<i>Quercus hinckleyi</i>
Lloyd's Mariposa cactus	(T)	<i>Echinomastus mariposensis</i>

Appendix B: Correspondence from U.S. Fish and Wildlife Service about Sensitive Species

Mountain plover	(T)	<i>Charadrius montanus</i>
Tall paintbrush	(P/T)	<i>Castilleja elongata</i>
Guadalupe fescue	(C)	<i>Festuca ligulata</i>
Shinner's tickle-tongue	(C)	<i>Zanthoxylum parvum</i>
Leoncita false foxglove	(C)	<i>Agalinis calycina</i>
Texas false saltgrass	(SOC)	<i>Allolepis texana</i>
Ferruginous hawk	(SOC)	<i>Buteo regalis</i>
Baird's sparrow	(SOC)	<i>Ammodramus bairdii</i>
Loggerhead shrike	(SOC)	<i>Lanius ludovicianus</i>
Northern goshawk	(SOC)	<i>Accipiter gentilis</i>
Northern gray hawk	(SOC)	<i>Buteo nitidus maximus</i>
Texas olive sparrow	(SOC)	<i>Arremonops rufivirgatus rufivirgatus</i>
Western burrowing owl	(SOC)	<i>Athene cunicularia hypugea</i>
White-faced ibis	(SOC)	<i>Plegadis chihi</i>
Davis Mountain cottontail rabbit	(SOC)	<i>Sylvilagus floridanus robustus</i>
Greater western mastiff bat	(SOC)	<i>Scalopus aquaticus texanus</i>
Presidio mole	(SOC)	<i>Eumops perotis californicus</i>
Spotted bat	(SOC)	<i>Eudenna maculatum</i>
Texas horned lizard	(SOC)	<i>Phrynosoma cornutum</i>
Blotched gambusia	(SOC)	<i>Gantheria senilis</i>
Blue sucker	(SOC)	<i>Cyclepsus elongatus</i>
Chihuahua shiner	(SOC)	<i>Notropis chihuahua</i>
Conchos pupfish	(SOC)	<i>Cyprinodon eximius</i>
Mexican stoneroller	(SOC)	<i>Camptostoma ornatum</i>
Proserpine shiner	(SOC)	<i>Cyprinella proserpina</i>
Rio Grande darter	(SOC)	<i>Etheostoma grahmi</i>
Rio Grande shiner	(SOC)	<i>Notropis jemezianus</i>
Blanchards' sphinx moth	(SOC)	<i>Adhemarius blanchardorum</i>
Bonita diving beetle	(SOC)	<i>Deronectes neomexicana</i>
Subtropical tiger beetle	(SOC)	<i>Cicindela nigrocoerulea subtropica</i>
Big Bend (Desert Mts.) bluegrass	(SOC)	<i>Poa strictiramea</i>
Big Bend hop hornbeam	(SOC)	<i>Ostrya chisosensis</i>
Bigpod bonamia	(SOC)	<i>Bonamia ovalifolia</i>
Bush-pea	(SOC)	<i>Genistidium dumosum</i>
White column cory cactus	(SOC)	<i>Coryphantha albicolumnaria</i>
Chaffey's cory cactus	(SOC)	<i>Coryphantha chaffeyi</i>
Chisos agave	(SOC)	<i>Agave glomeruliflora</i>
Chisos coral-root	(SOC)	<i>Hexalectris revoluta</i>
Chisos pinweed	(SOC)	<i>Lechea mensalis</i>
Cliff bedstraw	(SOC)	<i>Galium correllii</i>
Cox's dalea	(SOC)	<i>Dalea banonii</i>
Cutler's twistflower	(SOC)	<i>Streptanthus cutleri</i>
Dense cory cactus	(SOC)	<i>Coryphantha dasyacantha</i> var. <i>dasyacantha</i>
Desert night-blooming cereus	(SOC)	<i>Cereus greggii</i> var. <i>greggii</i>
Duncan's cory cactus	(SOC)	<i>Coryphantha duncanii</i>
Glass Mountain coral-root	(SOC)	<i>Hexalectris nitida</i>
Glass Mountain rock-daisy	(SOC)	<i>Perityle vitreomontana</i>
Golden-spine hedgehog cactus	(SOC)	<i>Echinocereus chloranthus</i> var. <i>neocapillus</i>
Golden-spined prickly-pear	(SOC)	<i>Opuntia aureispina</i>
Heather leaf-flower	(SOC)	<i>Phyllanthus ericoides</i>
Hester's cory cactus	(SOC)	<i>Coryphantha hesteri</i>
Hinckley's brickellbush	(SOC)	<i>Brickellia brachyphylla</i> var. <i>hinckleyi</i>
Lateleaf oak	(SOC)	<i>Quercus tardifolia</i>

APPENDICES

Little-leaf brongniartia	(SOC)	<i>Brongniartia minutifolia</i>
Long spur columbine	(SOC)	<i>Aquilegia longissima</i>
Many-flowered unicorn plant	(SOC)	<i>Proboscidea spicata</i>
Maravillas milkwort	(SOC)	<i>Polygala maravillasensis</i>
Mary's bluet	(SOC)	<i>Hedyotis butterwickiae</i>
Old blue mock pennyroyal	(SOC)	<i>Hedeoma pilosum</i>
Pale phacelia	(SOC)	<i>Phacelia pallida</i>
Perennial caltrop	(SOC)	<i>Kallstroemia perennans</i>
Purple gay-mallow	(SOC)	<i>Batesimalva violacea</i>
Ripley's senna	(SOC)	<i>Senna ripleyana</i>
Roberts' stonecrop	(SOC)	<i>Sedum robertsonianum</i>
Silver cholla	(SOC)	<i>Opuntia inthricata</i> var. <i>argentea</i>
Slender oak	(SOC)	<i>Quercus graciliformis</i>
Sonora fleabane	(SOC)	<i>Erigeron mimegletes</i>
Stairstep two-bristle rock-daisy	(SOC)	<i>Perityle bisetosa</i> var. <i>scalaris</i>
Straw-spine glory of Texas	(SOC)	<i>Thelocactus bicolor</i> var. <i>flavidispinus</i>
Swallow spurge	(SOC)	<i>Chamaesyce golondrina</i>
Terlingua brickelbush	(SOC)	<i>Brickellia brachyphylla</i> var. <i>terlinguensis</i>
Texas milkvine	(SOC)	<i>Matelea texensis</i>
Texas woltberry	(SOC)	<i>Lycium texanum</i>
Three-tongued spurge	(SOC)	<i>Chamaesyce chaetocalyx</i> var. <i>triligulata</i>
Trans-Pecos maidenbush	(SOC)	<i>Andrachne arida</i>
Two-bristle rock-daisy	(SOC)	<i>Perityle bisetosa</i> var. <i>bisetosa</i>
Texas purple spike	(SOC)	<i>Hexalectris warnockii</i>
Wilkinson's whitlow-wort	(SOC)	<i>Paronychia wilkinsonii</i>
Wright's water-willow	(SOC)	<i>Justicia wrightii</i>

Statewide or areawide migrants are not included by county, except where they breed or occur in concentrations. The whooping crane is an exception; an attempt is made to include all confirmed sightings on this list:

- E = Species in danger of extinction throughout all or a significant portion of its range.
- T = Species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
- C = Species for which the Service has on file enough substantial information to warrant listing as threatened or endangered.
- CH = Critical Habitat (in Texas unless annotated ‡)
- P/ = Proposed
- P/E = Species proposed to be listed as endangered.
- P/T = Species proposed to be listed as threatened.
- TSA = Threatened due to similarity of appearance.
- SOC = Species for which there is some information showing evidence of vulnerability, but not enough data to support listing at this time.
- ? = with special rule
- ‡ = CH designated (or proposed) outside Texas
- ~ = protection restricted to populations found in the "interior" of the United States. In Texas, the least tern receives full protection, except within 50 miles (80 km) of the Gulf Coast.

County Name Code Designations:

examples

- Anderson** = Arlington Ecological Services (ES) office
- (Bee)** = Corpus Christi ES office
- Galvestoni** = Clear Lake ES office
- Gillespie** = Austin ES office

APPENDIX C: SAMPLE LANDOWNER AGREEMENT

RIO GRANDE WILD AND SCENIC RIVER AGREEMENT

Between the

NATIONAL PARK SERVICE, UNITED STATES DEPARTMENT OF THE INTERIOR

and

_____, **AN OWNER OF PRIVATE LAND**

ALONG THE LOWER CANYONS OF THE RIO GRANDE IN _____ COUNTY, TEXAS

THIS AGREEMENT is entered into by and between the National Park Service (hereinafter “NPS”), United States Department of the Interior, an agency of the United States of America, acting through the Superintendent of the Rio Grande Wild and Scenic River, Texas (hereinafter “RGWSR”), and _____ an owner of private land located along the Lower Canyons of the Rio Grande in _____ County, Texas (hereinafter “Landowner”).

I. BACKGROUND AND OBJECTIVES:

WHEREAS, in title VII, § 702 of the National Parks and Recreation Act of 1978, Pub. L. No. 95-625, 92 Stat. 3467, 3522, Congress designated the segment of the Rio Grande in Texas on the United States side of the river from river mile 842.3 above Mariscal Canyon downstream to river mile 651.1 at the Terrell-Val Verde County line as a wild and scenic river under the Wild and Scenic Rivers Act, codified at 16 USC § 1271-87 (2000); and

WHEREAS, in that act Congress directed that the RGWSR be administered by the Secretary of the Interior; and

WHEREAS, the Secretary of the Interior has delegated the authority to administer RGWSR to the NPS; and

WHEREAS, the NPS has not yet adopted a management plan for RGWSR; and

WHEREAS, many of the owners of private land along the Rio Grande’s Lower Canyons in Brewster and Terrell Counties, Texas, acquired their land prior to the Rio Grande’s designation as a wild and scenic river, opposed the legislation designating the Rio Grande as a wild and scenic river, continue to lobby against that legislation, and believe that the limits of RGWSR were set in part to authorize condemnation of private lands along the Rio Grande’s Lower Canyons; and

WHEREAS, those owners acquired their private lands along the Rio Grande’s Lower Canyons because of the area’s scenic beauty, wildness, isolation, and restricted access and over the past twenty-three years have acted as good stewards to maintain and protect the Rio Grande as a wild and scenic river without an NPS management plan; and

WHEREAS, the Landowner owns private property along the Rio Grande’s Lower Canyons as more particularly described in the SPECIAL PROVISIONS in Article IV below; and

WHEREAS, the scenery and resources along the reach of the Rio Grande on the Landowner’s property are nationally significant; and the values of riverfront land exceeds the value of the adjoining ranch; and

WHEREAS, the NPS and the Landowner now recognize the commonality of their interest in preserving the Rio Grande as a wild and scenic river, and the necessity of the NPS, the State of Texas, and the Landowner in participating as partners in the management of the river; and

WHEREAS, the management plan to be developed by the NPS shall help to maintain the Rio Grande as a wild and scenic river in its current state, without interfering with the Landowner's property rights;

NOW, THEREFORE, THE NPS AND THE LANDOWNER AGREE AS FOLLOWS:

II. DEFINITIONS:

In this agreement the following terms shall have the following definitions:

Absolute Boundary — The landowner's property line along the reaches of the river, as determined by Texas State law.

Access — Locations that provide legal Public access to the river.

Categories of Use — Categories of Use are the following: commercial users and their customers utilizing any form of non-motorized water craft; noncommercial users utilizing any form of motorized water craft (as defined in management plan); noncommercial users utilizing any form of non-motorized water craft.

Historic Use — The utilization of the reaches of the Lower Canyons by the Public between 1978 and 2000, measured in user-days per year.

Management Area — The area between (1) the international boundary between the United States and Mexico and (2) the Management Boundary. Within the Management Area the United States has the authority to purchase land or property rights from a willing seller.

Management Boundary — A line located on the land owned by the Landowner (1) that demarcates the portion of the Landowner's land visible from the River or (2) that lies 1/4-mile from the River, whichever is closer to the River, unless otherwise provided under the Special Provisions in article IV below.

Management Plan — A comprehensive river management plan, to be developed by the NPS in compliance with the National Environmental Policy Act of 1969 and other applicable federal laws, that (1) describes the existing resource conditions and the outstandingly remarkable values of the River, (2) defines the goals and desired future conditions for protecting river values, (3) address water quality issues and stream flow requirements, (4) reflects a collaborative approach, recognizing the opportunities for partnership with all stakeholders, and (5) includes a monitoring strategy to maintain desired future conditions.

Permit — A written authorization issued by the NPS to a member of the Public for river use.

Property — All land owned by the Landowner within the Management Area, as more particularly described in the SPECIAL PROVISIONS in Article IV below.

Public — All persons who are not (1) the Landowner or a legal relative, employee, assign, agent, or guest of the Landowner, as long as that person is accessing or utilizing the River at a location adjoining the Property, or (2) employees or agents of the NPS or the State of Texas.

Ranch — All contiguous land under the same ownership, any portion of which adjoins the River.

Reach — A segment of the River.

River — The reaches of the Rio Grande within Brewster and Terrell Counties, Texas.

Traffic — All activities of the Public on and along the River.

III. SPECIFIC TERMS OF AGREEMENT:

A. THE NPS SHALL:

1. Adopt and enforce such rules and regulations applicable to the Public as are necessary to maintain and preserve the Rio Grande as a wild and scenic river, in its current state, while protecting the Landowner's property rights.
2. Implement the NPS's Management Plan within the Management Area.
3. Limit use of the river by the Public to less than 115% of Historic Use in each Category of Use.
4. **[NOTE: Issues and specific details involved with the liability insurance described in the following paragraph have not yet been resolved. This paragraph may be revised in the final agreements.]**
Procure and maintain in force and effect during the term of this agreement general public liability insurance for the Property from a reputable company or companies licensed in the State of Texas with a minimum limitation of One Million Dollars (\$1,000,000.00) per person and One Million Dollars (\$1,000,000.00) per incident naming the United States of America and the Landowner as co-insured and insuring against any liability for property damage, personal injury, or death arising out of or resulting from the Public's use of the Property pursuant to or as a result of this agreement.
5. Not initiate or prosecute any condemnation or eminent domain proceedings against all or any part of the Property.
6. By appropriate and effectively located signs and printed information on the Permit, notify commercial users and other persons entering the River through public access points that the land adjoining the United States side of the River is private property and that their presence on the Property without the Landowner's permission constitutes criminal trespass under the laws of the State of Texas, unless the Property may, by virtue of this agreement, be utilized by the Public.
7. Endeavor in every appropriate way to encourage Mexico to adopt the NPS's Management Plan.
8. Endeavor in every appropriate way to enforce the NPS's rules and regulations and Management Plan with regard to United States citizens entering the River from Mexico or utilizing the Mexican side of the River.
9. Not conduct surveys, studies, assessments, investigations, and evaluations of the environment, archeology, biology, geology, or any other facet of the Property without the Landowner's express written consent.
10. Not interfere with the Landowner's use of the Property and access to the river.
11. Maintain an interest in not more than two Public Access areas within the Lower Canyons. One area to enter the river located at Heath Canyon and one area to leave the river located at Dryden Crossing.

B. THE LANDOWNER SHALL:

1. Provide the NPS with one hundred and eighty (180) days advance written notice of any plan or proposal to subdivide or change the use of all or any portion of the Property or to build, alter, renovate, or demolish any structure located in the Management Area. Within sixty (60) days after providing any such notice, the Landowner shall meet with the NPS, at the NPS's request, to discuss the effects on the RGWSR of the Landowner's planned or proposed activity and the possibility of mitigating any adverse effects.
2. Allow the NPS to enter onto the Property for the purpose of monitoring the RGWSR's outstandingly remarkable values that are site-specific and identified in the SPECIAL PROVISIONS in Article IV below.
3. Allow the NPS to enter onto the Property from the river for the purpose of enforcing NPS rules and regulations and the provisions of the NPS's Management Plan as applicable to the Public. For purposes of

interpreting this provision, “enforcing” shall include, but not be limited to, investigating possible violations, issuing citations, and making arrests.

4. Allow the NPS access to the Property through the Ranch in order to respond to emergencies on the Property and along the River.
5. Grant the NPS and the Public any authorities or privileges conferred by the SPECIAL PROVISIONS in Article IV below.
6. Make the sale of any part of the Property subject to this Agreement. Inform prospective buyers of this agreement along with the benefits, responsibilities, and restrictions associated with the designation of the Rio Grande as a wild and scenic river.

C. THE NPS AND THE LANDOWNER FURTHER AGREE AS FOLLOWS:

1. The parties shall communicate on a regular basis (at least once annually) to discuss the implementation of this agreement and other river management concerns.
2. To reflect their evolving relationship, the parties may, but shall have no obligation to, execute other agreements and legal instruments, including, but not limited to, leases, easements, and licenses.
3. This agreement shall not be construed as to obligate the NPS to expend in any one fiscal year any sum in excess of monies appropriated by the United States Congress and allocated by the NPS for the purposes of this agreement.

IV. SPECIAL PROVISIONS:

A. LEGAL DESCRIPTIONS:

1. Property:

2. Management Boundary:

B. OUTSTANDING REMARKABLE VALUES:

1. *(Identification, Location, Description and Condition of site specific outstandingly remarkable values.)*
2. *(Identification, Location, Description and Condition of site specific outstandingly remarkable values.)*
3. *(Identification, Location, Description and Condition of site specific outstandingly remarkable values.)*

C. SPECIFIC AUTHORITIES, PERMISSIONS, AND GRANTS TO THE NPS:

1. Camping:

2. Resting:
3. Hiking:
4. *(Other outdoor recreational activities)*

D. LEASES:

E. RESTRICTIONS:

F. LANDOWNER RESERVATIONS:

V. TERM:

This agreement shall remain in force and effect for a term of ten (10) years after its effective date, which shall be the date of final approval of the NPS's Management Plan for the RGWSR (i.e., the signing of the NPS's Record of Decision), if such approval occurs within one year after the date of last signature on this agreement. If such approval does not occur within one year after the date of last signature on this agreement, then this agreement shall be null and void unless the parties agree in writing to an extension of time.

At the conclusion of the initial ten-year term, this agreement shall be automatically extended for an additional ten-year term, and thereafter for additional ten-year terms, unless either party has declared it terminated pursuant to article V below.

VI. MODIFICATION AND TERMINATION:

Only a written instrument executed by the parties may modify this agreement.

This agreement may be terminated at any time by written agreement of the parties. Furthermore, if either party breaches, violates, or fails to fulfill a material term or provision of this agreement, then the other party may elect to provide the breaching party with a written notice of the breach, violation, or failure. Upon receiving such written notice, the breaching party shall take prompt action to try to remedy the alleged breach, violation, or failure. If such action does not satisfy the non-breaching party, then the non-breaching party, in its sole discretion, may declare the agreement terminated at any time beginning sixty (60) days after the date when the breaching party receives the written notice of the breach, violation, or failure.

The parties believe that this agreement benefits both parties and hereby commit to using every reasonable means available, including the use of a neutral mediator if necessary, to ~~try~~ to avoid terminating this agreement.

If this Agreement is terminated as a result of a breach, violation, or failure, then the non-breaching party shall have the right to seek any and all remedies provided by law in state or federal court.

VII. SEVERABILITY:

If a court of competent jurisdiction declares any part of this agreement invalid, then either party may declare the entire agreement terminated within sixty (60) days after such event. If neither party declares the entire agreement terminated within sixty (60) days after such event, then the remaining provisions of this agreement shall remain in full force and effect.

VIII. COVENANTS:

APPENDIXES

The agreements described in Article III above constitute covenants that benefit the United States of America and the Landowner that burden and run with the Property, and that bind the parties' heirs, successors, and assigns.

IX. AUTHORIZED REPRESENTATIVES:

All notices and correspondence concerning this agreement shall be directed to the following authorized representatives of the parties:

1. For the National Park Service, United States Department of Interior:

Superintendent
Big Bend National Park/Rio Grande Wild and Scenic River
P.O. Box 129
Big Bend National Park, TX 79834-0129
Telephone: (915) 477-2251
Telefax: (915) 477-2357

2. For the Landowner:

[Insert name/position, address, and telephone and telefax numbers of Landowner or his/her authorized representative here.]

IX. AUTHORIZING SIGNATURES:

IN WITNESS HEREOF, the following persons, as authorized representatives, have signed this agreement on the dates indicated, thereby executing this agreement.

**For the National Park Service,
United States Department of Interior:**

For the Landowner:

Name (signature)

Name (signature)

Name (printed)
Superintendent, Rio Grande Wild and Scenic River

Name (printed)

Date:

Date:

APPENDIX D: TEXAS RECREATION USE STATUTE

TEXAS STATUTE CIVIL PRACTICES AND REMEDIES, CHAPTER 75, LIMITATION OF LANDOWNERS' LIABILITY

§ 75.001. Definitions

In this chapter:

(1) "Agricultural land" means land that is located in this state and that is suitable for:

(A) use in production of plants and fruits grown for human or animal consumption, or plants grown for the production of fibers, floriculture, viticulture, horticulture, or planting seed;

(B) forestry and the growing of trees for the purpose of rendering those trees into lumber, fiber, or other items used for industrial, commercial, or personal consumption; or

(C) domestic or native farm or ranch animals kept for use or profit.

(2) "Premises" includes land, roads, water, watercourse, private ways, and buildings, structures, machinery, and equipment attached to or located on the land, road, water, watercourse, or private way.

(3) "Recreation" means an activity such as:

(A) hunting;

(B) fishing;

(C) swimming;

(D) boating;

(E) camping;

(F) picnicking;

(G) hiking;

(H) pleasure driving;

(I) nature study, including bird-watching;

(J) cave exploration;

(K) waterskiing and other water sports; or

(L) any other activity associated with enjoying nature or the outdoors.

(4) "Governmental unit" has the meaning assigned by Section 101.001.

Acts 1985, 69th Leg., ch. 959, § 1, eff. Sept. 1, 1985. Amended by Acts 1989, 71st Leg., ch. 62, § 1, eff. Sept. 1, 1989; Acts 1989, 71st Leg., ch. 736, § 1, eff. Sept. 1, 1989; Acts 1995, 74th Leg., ch. 520, § 1, eff. Aug. 28, 1995.

Amended by Acts 1997, 75th Leg., ch. 56, § 1, eff. Sept. 1, 1997.

§ 75.002. Liability Limited

(a) An owner, lessee, or occupant of agricultural land:

(1) does not owe a duty of care to a trespasser on the land; and

(2) is not liable for any injury to a trespasser on the land, except for willful or wanton acts or gross negligence by the owner, lessee, or other occupant of agricultural land.

(b) If an owner, lessee, or occupant of agricultural land gives permission to another or invites another to enter the premises for recreation, the owner, lessee, or occupant, by giving the permission, does not:

(1) assure that the premises are safe for that purpose;

(2) owe to the person to whom permission is granted or to whom the invitation is extended a greater degree of care than is owed to a trespasser on the premises; or

(3) assume responsibility or incur liability for any injury to any individual or property caused by any act of the person to whom permission is granted or to whom the invitation is extended.

(c) If an owner, lessee, or occupant of real property other than agricultural land gives permission to another to enter the premises for recreation, the owner, lessee, or occupant, by giving the permission, does not:

(1) assure that the premises are safe for that purpose;

(2) owe to the person to whom permission is granted a greater degree of care than is owed to a trespasser on the premises; or

(3) assume responsibility or incur liability for any injury to any individual or property caused by any act of the person to whom permission is granted.

(d) Subsections (a), (b), and (c) shall not limit the liability of an owner, lessee, or occupant of real property who has been grossly negligent or has acted with malicious intent or in bad faith.

(e) In this section, "recreation" means, in addition to its meaning under Section 75.001, the following activities only if the activities take place inside a facility owned, operated, or maintained by a municipality:

(1) hockey and in-line hockey; and

(2) skating, in-line skating, roller-skating, skateboarding, and roller-blading.

(f) Subsection (e) limits the liability of a municipality only for those damages arising directly from a recreational activity described in Subsection (e) but does not limit the liability of a municipality for gross negligence or acts conducted in bad faith or with malicious intent.

APPENDIXES

(g) Any municipality that owns, operates, or maintains a facility in which the recreational activities described in Subsection (e) are conducted shall post and maintain a clearly readable sign in a clearly visible location on or near the building. The sign shall contain the following warning language:

WARNING

TEXAS LAW (CHAPTER 75, CIVIL PRACTICE AND REMEDIES CODE) LIMITS THE LIABILITY OF A MUNICIPALITY THAT OWNS, OPERATES, OR MAINTAINS A FACILITY IN WHICH HOCKEY, IN-LINE HOCKEY, SKATING, IN-LINE SKATING, ROLLER-SKATING, SKATEBOARDING, OR ROLLER-BLADING ARE CONDUCTED FOR DAMAGES ARISING DIRECTLY FROM SUCH RECREATIONAL ACTIVITIES.

Acts 1985, 69th Leg., ch. 959, § 1, eff. Sept. 1, 1985. Amended by Acts 1989, 71st Leg., ch. 62, § 2, eff. Sept. 1, 1989.

Amended by Acts 1997, 75th Leg., ch. 56, § 2, eff. Sept. 1, 1997; Acts 1999, 76th Leg., ch. 734, § 1, eff. Sept. 1, 1999.

§ 75.003. Application and Effect of Chapter

(a) This chapter does not relieve any owner, lessee, or occupant of real property of any liability that would otherwise exist for deliberate, willful, or malicious injury to a person or to property.

(b) This chapter does not affect the doctrine of attractive nuisance, except that the doctrine may not be the basis for liability of an owner, lessee, or occupant of agricultural land for any injury to a trespasser over the age of 16 years.

(c) Except for a governmental unit, this chapter applies only to an owner, lessee, or occupant of real property who:

(1) does not charge for entry to the premises;

(2) charges for entry to the premises, but whose total charges collected in the previous calendar year for all recreational use of the entire premises of the owner, lessee, or occupant are not more than:

(A) twice the total amount of ad valorem taxes imposed on the premises for the previous calendar year; or

(B) four times the total amount of ad valorem taxes imposed on the premises for the previous calendar year, in the case of agricultural land; or

(3) has liability insurance coverage in effect on an act or omission described by Section 75.004(a) and in the amounts equal to or greater than those provided by that section.

(d) This chapter does not create any liability.

(e) Except as otherwise provided, this chapter applies to a governmental unit.

(f) This chapter does not waive sovereign immunity.

(g) To the extent that this chapter limits the liability of a governmental unit under circumstances in which the governmental unit would be liable under Chapter 101, this chapter controls.

(h) In the case of agricultural land, an owner, lessee, or occupant of real property who does not charge for entry to the premises because the individuals entering the premises for recreation are invited social guests satisfies the requirement of Subsection (c) (1).

Acts 1985, 69th Leg., ch. 959, § 1, eff. Sept. 1, 1985. Amended by Acts 1987, 70th Leg., ch. 832, § 5, eff. Sept. 1, 1987; Acts 1989, 71st Leg., ch. 62, § 3, eff. Sept. 1, 1989; Acts 1995, 74th Leg., ch. 520, § 2, eff. Aug. 28, 1995.

Amended by Acts 1997, 75th Leg., ch. 56, § 3, eff. Sept. 1, 1997.

§ 75.004. Limitation on Monetary Damages for Private Landowners

(a) Subject to Subsection (b), the liability of an owner, lessee, or occupant of agricultural land used for recreational purposes for an act or omission by the owner, lessee, or occupant relating to the premises that results in damages to a person who has entered the premises is limited to a maximum amount of \$500,000 for each person and \$1 million for each single occurrence of bodily injury or death and \$100,000 for each single occurrence for injury to or destruction of property. In the case of agricultural land, the total liability of an owner, lessee, or occupant for a single occurrence is limited to \$1 million, and the liability also is subject to the limits for each single occurrence of bodily injury or death and each single occurrence for injury to or destruction of property stated in this subsection.

(b) This section applies only to an owner, lessee, or occupant of agricultural land used for recreational purposes who has liability insurance coverage in effect on an act or omission described by Subsection (a) and in the amounts equal to or greater than those provided by Subsection (a). The coverage may be provided under a contract of insurance or other plan of insurance authorized by statute. The limit of liability insurance coverage applicable with respect to agricultural land may be a combined single limit in the amount of \$1 million for each single occurrence.

(c) This section does not affect the liability of an insurer or insurance plan in an action under Article 21.21, Insurance Code, or an action for bad faith conduct, breach of fiduciary duty, or negligent failure to settle a claim.

(d) This section does not apply to a governmental unit.

Added by Acts 1995, 74th Leg., ch. 520, § 3, eff. Aug. 28, 1995.

Amended by Acts 1997, 75th Leg., ch. 56, § 4, eff. Sept. 1, 1997.

SELECTED REFERENCES

- Bureau of the Census, U.S. Department of Commerce
 various dates *Current Population Survey Program, Annual Demographic Survey*. From the Internet at <www.census.gov>, accessed in 2002.
- 2001 *Decennial Census Data, years 1950-2000*. From the Internet at <www.census.gov>, accessed May 13, 2002.
- Bureau of Economic Analysis, U.S. Department of Commerce
 various dates Various information about the economy. From the Internet at <www.bea.doc.gov>, accessed May 13, 2002.
- Bureau of Outdoor Recreation, U.S. Department of the Interior
 1975 *Rio Grande Wild and Scenic River Study*. Washington, DC.
- Council on Environmental Quality, Executive Office of the President
 1978 "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act." *Code of Federal Regulations* Title 40, Parts 1500–1508. Washington, D.C.
- Mallouf, Robert, and Curtis Tunnel
 1977 *An Archeological Report of the Lower Canyons of the Rio Grande*. Austin, TX: Office of the State Archeologist, Texas Historical Commission. Archeological Survey Report 22.
- National Park Service, U.S. Department of the Interior
 N.d. "Director's Order 13: Environmental Leadership." (draft in preparation)
- N.d. NPS-77: *Natural Resource Management Guidelines*.
- 1980 *Environmental Assessment / General Development Plan: Rio Grande Wild and Scenic River, Texas*. Denver, CO.
- 1981 *Draft General Management Plan / Development Concept Plan: Rio Grande Wild and Scenic River, Texas*. Denver, CO.
- 1982 *National Wild and Scenic Rivers System: Final Revised Guidelines for Eligibility, Classification, and Management of River Areas*. Washington, DC: *Federal Register*, vol. 41, no. 173: 39454–39461.
- 1984 *Final Environmental Impact Statement: Proposed Wilderness Classification. Big Bend National Park, Texas*.
- 1997 *Recreational River Use Management Plan: Big Bend National Park*. Big Bend, TX.
- 1998a Director's Order 28, *Cultural Resource Management Guideline*. Washington, D.C.
- 1998b Director's Order 2, *Park Planning*. Washington, D.C.
- 1998c Director's Order 77.1, *Wetland Protection*. Washington, D.C.
- 2000 Director's Order 47, *Soundscape Preservation and Noise Management*. Washington, D.C.

REFERENCES

National Park Service, U.S. Department of the Interior (continued)

2001a Director's Order 12, *Conservation Planning and Environmental Impact Analysis*. Washington, D.C.

2001b *Management Policies 2001*. Washington. D. C.

Terrell County, Texas

2002 *Economic Profile*. From the Internet at <www.sandersontx.org>.

Texas

2002 *Civilian Labor Force Estimates*. From the Internet at <www.twc.state.tx.us>.

U.S. Department of the Interior

1996 *The Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for the Treatment of Cultural Landscapes*.

2002 *Money Generation Model*. N.p.

U.S. Environmental Protection Agency

1998 *Environmental Justice Guidance .An Archeological Report of the Lower Canyons of the Rio Grande*. Austin, TX: Office of the State Archeologist, Texas Historical Commission. Archeological Survey Report 22.

U.S. Fish and Wildlife Service, U.S. Department of the Interior.

1984 *Recovery plan for Big Bend Gambusia (Gambusia gaigei, Hubbs 1929)*. Prepared by Rio Grande Fishes Recovery Team. N.p.

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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NPS D-5, October 2003.

